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Family Context and Premarital Sexual Activity in Kinshasa, Zaire.

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FAMILY CONTEXT AND PREMARITAL SEXUAL ACTIVITY IN KINSHASA, ZAIRE

A Dissertation

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in

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ABSTRACT

Studies on sexual behavior in Africa have shown that the proportion of women with premarital sexual experience is high, but the factors associated with premarital sexual behavior have not been clearly identified. This is partly due to the separation between theory and research. This study attempts to fill this gap by constructing a new conceptual framework in which hypotheses of rational adaptation, social disorganization, and patrilineal bias theories can be empirically tested.

Based on a life history approach, the present framework emphasizes the role of three dimensions of family background in shaping individual behavior: financial capital, human capital, and social capital. The data derive from a random sample of 2,000 women aged 14-24 years interviewed in Kinshasa in 1995. The results show that 46 percent of respondents were sexually experienced before marriage, but only 16 percent of them used contraceptives at their first sexual intercourse. Among these 2,000 respondents, 26 percent had sexual relations with multiple partners.

The results of multivariate analysis show that AIDS knowledge reduces the risk of engaging in premarital sexual activity. Even those who elect to have intercourse before marriage, knowing AIDS significantly limits the number of sexual partners and increases the chance of having first

contracepted sexual experience. Consistent with the anthropological hypothesis of patrilineal bias, these data indicate higher risk of premarital sexual activity and more chance of having multiple sexual partners among matrilineal women than their patrilineal counterparts.

This study offers only partial support to the social disorganization theory. While education and human capital are positively associated with both premarital sexual permissiveness and premarital promiscuousness, urban background and exposure to mass media reduce the risk of having premarital sexual experience. Also, unlike what has been commonly assumed about female poverty, current data reveal a positive association between financial capital and premarital sexuality. Similarly, social capital within the family increases the risk of having premarital sexual intercourse, suggesting that children in larger families receive less adult attention. These findings indicate the importance of AIDS information, family background, and kinship system in research and intervention programs aimed at reducing the burden of premarital sexuality.

CHAPTER 1

INTRODUCTION

STATEMENT OF THE PROBLEM

Anthropological literature on Africa suggests that the concept of sex is highly complex. In these societies sex is held to have magical potency, and the supernatural dangers associated with it can only be avoided if the appropriate taboos are observed and the prescribed rituals properly performed (Epstein, 1981:89). It is under the institution of marriage that sexuality can be domesticated or tamed, but even there, the use of sex has to be ordered and on occasion reverently handled (Richards, 1940). The complexity of African sexual behavior led some researchers to infer that Africans often prefer to say to each other that the "African way" should not be discussed with non-Africans (Caldwell, Caldwell, and Quiggin, 1989:194).

Such considerations along with the social taboos that exist in most societies of sub-Saharan Africa have limited the study of sexual behavior, especially sexual activity of unmarried people. Nonetheless, anthropologists have documented some aspects of sexual relations in limited areas of Africa. In contrast, the emphasis of demographic research on reproductive behavior demonstrates that population researchers and family planners like to think that sexual intercourse without conception has no impact on population (Population Council, 1994:2).

With the rapid spread of the AIDS epidemic in 1980s and 1990s, premarital sexual activity has become a major social concern in many African countries, especially in urban areas. In 1980s, it was estimated that 6 to 8 percent of adults in Kinshasa were seropositive, and that about 90 percent of AIDS cases were transmitted through sexual contact (N'Galy and Ryder, 1988). Literature suggests that sexual permissiveness increases during economic downturn (Barker and Rich, 1992; Weiss, 1993). The prevalence of AIDS may have increased in the 1990s as a result of an acute economic crisis in Kinshasa and Zaire characterized by hyperinflation and unemployment.

It is well-known now that the consequences of unsafe sexual activity are greater for females than for males. First, the transmission of HIV through sexual intercourse is more effective from male to female than from female to male (Population Council, 1994), and for younger girls immaturity of the vaginal tract may also increase the risk of infection (UNDP, 1992). Second, seropositive females can infect their babies during gestation or delivery. Third, female sexual activity tends to be negatively associated with marriage desirability (Djamba, 1995a; Oliver and Sedikides, 1992), and those who become parents before marriage are socially and economically disadvantaged throughout their lives (Hayes, 1987).

Furthermore, gender-role stereotypes that portray sexually active girls as "loose" or "cheap" reduce young females' ability to negotiate their sexual lives and prevent them from seeking contraceptive information. Data from a 1991 survey in Kinshasa show that 18 percent of women did not use contraceptive methods at their first premarital intercourse, because the act was unplanned (Djamba, 1994). But like many other studies in Kinshasa (Bertrand et al., 1991; Tambashe and Shapiro, 1991), the major concern of this 1991 study was the reproductive behavior of adults; therefore, only a relatively small number of adolescents was included in the sample. Another limitation of past studies on premarital sexual activity in Africa is their failure to specify a conceptual frame of reference (Gage and Meekers, 1994; Meekers, 1994; Nichols et al. 1987). As a result, sexual behavior and its consequences are usually treated as a function of individual attributes. If mentioned, family background has been narrowly operationalized as living arrangements (Kane et al. 1993).

Unlike previous work, the present study aims at explaining female premarital sexual behavior within an integrated analytical framework. Using Coleman's (1988) conceptual model of social capital as a starting point, I contend that the transition to premarital sexual activity is an element of social structure that is a product of both

individual characteristics and institutional (familial) dynamic forces. Therefore, it refers to socially patterned trajectories, not to individual biographies alone. This assumption and other hypotheses associated with sexual behavior are tested on a representative sample of 2,000 women aged 14-24 years interviewed in Kinshasa in 1995.

OBJECTIVES

While it is clearly established now that AIDS is a sexually transmitted disease, many aspects of heterosexual transmission remain puzzling. For example, factors which increase or decrease the risk of engaging in unsafe sexual activity have not been clearly identified. Whether they are tangible or not, it seems intuitively appropriate to look for these determinants of sexual behavior at both the individual and the family levels.

The purpose of this study is, therefore, to determine the extent to which family background and individual characteristics influence premarital sexual behavior of young women. As I explain later, family background is conceptualized in this study through three types of capital which represent physical and non-physical resources available in the family. More specifically, this study pursues three major objectives. The first objective is to determine the impact of these family resources (or types of capital) on the three aspects of premarital sexuality: initiation of first premarital sexual intercourse, number

of premarital sexual partners, and contraceptive use at first sexual experience. The second objective is to determine the impact of AIDS knowledge on these three aspects of premarital sexual behavior. The third objective is to use the findings to propose educational and service delivery models that meet the needs of young women.

REVIEW OF THE LITERATURE

Past studies

The following review of literature suggests that many African societies are undergoing profound changes in the area of female sexual conduct before marriage. However, researchers do not always agree as to the causes and perspectives of these behavioral changes. In general, anthropologists have done more than demographers when it comes to analysis of sexual behavior in Africa.

Anthropological accounts suggest that African sexual behavior is more associated with reproduction than with romantic love, and that for many societies, female virginity was considered as a precondition for successful marriage. In his study of the Yoruba of Ghana and Nigeria, Bascom (1969) wrote that older generations reported that virginity was expected of the bride; about 90 percent of brides were virgin at marriage. Although the great value attributed to a girl's virginity at marriage is less important today than before, it still constitutes an ideal from the male point of view (Eades, 1980:57), especially in

rural areas (Orubuloye, 1981). Similar statements have been made about other African countries.

Richards (1956) reported on the Bemba of Zambia that the climax of the marriage ceremony was sexual intercourse between the newly-wed spouses, which was referred to as *kulye cisungu*, meaning the eating of *cisungu* (virginity) by the husband. Thus, to steal the *cisungu* by having intercourse with a girl who had not yet been properly initiated was regarded as a most serious offense, because it considerably diminishes the girl's chances of achieving a successful marriage. The value associated with female virginity is translated to the payment of *ndalama sha cisungu*, by the new husband as a recognition of his wife's chastity, in addition to the regular marriage payment called *mpango*. The main difference between *mpango* and *ndalama sha cisungu* was that the former conferred uxorial rights (rights to live with the wife) and might therefore be reclaimed in the event of a divorce; the *ndalama sha cisungu* referred only to the right to take the bride's virginity, and thus non-refundable. The amounts for *cisungu* were much larger than for *mpango* (Epstein, 1981:279).

In Zaire, the ethnic group Luba also attaches high value to female virginity. Female premarital sex is not only prohibited, but also the husband who finds his wife virgin at marriage has to give a goat to his mother-in-law as a recognition of the efforts she made to keep her

daughter chaste. This practice known as *chibindji* is loosing its importance, but most parents still regard it as the most honorific condition for successful marriage. Data on married women in Kinshasa in 1991 show that, compared to other ethnic groups, Luba women were the least likely to have engaged in premarital sexual activity (Djamba, 1995a).

The control of female virginity has been also reported in studies on East African populations. Oboler (1985) on the Nandi of Kenya, Mair (1965) on the Buganda of Uganda, Goldschmidt (1976) on the Sebei of Eastern Uganda, LeVine (1979) on Gusii of Kenya, and other ethnographic studies, all point to stricter norms about female sexuality in the past than in the present. For example, recent accounts on the Buganda of Uganda show that virginity is no longer considered very important. In fact, Buganda parents now encourage premarital sexual relations by building separate houses for sexually active adolescents. Exceptions to the general trend are found in Zimbabwe, where premarital sexuality is still socially disapproved; thus among the Shona, the man who has sexual intercourse with a virgin is required to pay damage to the girl's parents (Meekers, 1994).

Recent survey data on female premarital sexual activity also support the assumption that traditional norms associated with female virginity have become weaker. A 1982 survey of 15-25 year-old unmarried residents of the Ibanda

area in Nigeria showed that among females, 38.4 of those enrolled in high school, 61.2 percent of those enrolled in university, and 91.5 percent of non-students have had sexual intercourse. Nearly half of females enrolled in these schools have been pregnant and all voluntarily terminated their pregnancies (Nichols et al. 1986).

Results of a survey conducted in Monrovia, Liberia in 1984, showed that most young unmarried females were sexually active, with about 30 to 49 percent having sexual relations at least once a month. Half of females aged 14-21 years who were attending school, and 67 percent of those not in school have been pregnant (Nichols et al. 1987). These findings imply that many unmarried people do not use contraception, which most researchers tend to attribute to a lack of information. In an effort to understand the effects of family life education on reproductive health, Kane and his colleagues analyzed data from a 1986-87 sample survey of young adults in Banjul, Gambia. Their results revealed that attendance at family life education lectures in school had significant positive relationships to both knowledge and use of contraceptives (Kane et al. 1993).

The Demographic and Health Surveys (DHS) provide current and valuable information on sexual, marital, and reproductive behavior of women aged 15 years and older. Data from the first wave of DHS show that the percentage of sexually active unmarried women is very high in many

countries (Population Reference Bureau, 1992). Due to low levels of contraceptive use, many women have babies before the age of 20 years, and a significant proportion of these babies are born to unmarried teenagers.

More important, Meekers (1994) has shown that in virtually all countries covered by the first wave of DHS, the majority of never-married women who are mothers are unhappy about the timing of their first births. This situation is also reflected in high rates of induced abortion among adolescents, in spite of legislation prohibiting voluntary termination of pregnancy. Although DHS data contain a variety of information that can be used to enhance the understanding of premarital sexual behavior in several countries of Africa, these surveys do not include questions on number of sexual partners, contraceptive history, and history of AIDS-related knowledge.

Aside from the standard questionnaire approach and anthropological work reported above, researchers have conducted focus-group discussions and other forms of qualitative studies on sexual behavior in Africa. Barker and Susan's (1992) report of a series of single-sex focus group discussions conducted in 1981 with in-school and out-of-school youth in urban and rural areas of Kenya and Nigeria shows that young people tend to have better

information and more positive attitudes about induced abortion than about contraception.

Based on the assumption that students' reality cannot be understood without taking their social environment into consideration, Görgen, Maier, and Diesfeld (1993) qualitatively studied school-girl pregnancies in Burkina Faso; they found that a premarital pregnancy was considered shameful for the family, especially for male family members. For the latter, premarital childbearing was not only a scandal, but also a severe dishonor. The authors reported that teenage mothers in school suffered most because other students, especially the boys, treated them with disrespect. These teenage mothers were no longer considered as normal members of their school peer group.

Theoretical perspectives

Theories attempting to explain sexual behavior in sub-Saharan Africa can be divided into three broad categories: i) anthropological perspective, ii) rational adaptation or economic hypothesis, and iii) social disorganization theory.

Anthropological perspective

Anthropologists emphasize the influence of social structure in shaping female sexual behavior. In line with the anthropological tradition, variations in premarital sexual behavior are accounted for by differences in how premarital sex is regarded from one society to the next

(Broude, 1981). This comparative approach derives mainly from the work of Murdock (1964;1967) and Westbrook (1963). These earliest cross-cultural studies led to the formulation of a variety of hypotheses about female premarital sexual behavior.

Schlegel and Barry (1986), for example, argue that the female social role is positively associated with sexual permissiveness. According to these authors, attitude toward premarital sexual intercourse is related to female contribution to subsistence. Therefore, premarital sexual permissiveness characterizes societies with a high female contribution to subsistence. If one assumes that in Africa women's contribution to subsistence is higher in rural areas than in cities, then it can be expected that rural residents would be more promiscuous than their urban counterparts. However, this assumption is not supported by recent studies which show small and usually insignificant urban-rural differences in sexual permissiveness (Meekers, 1994). In fact, as I discuss later, within the social disorganization framework, urbanites are expected to be more permissive than their rural counterparts.

A macro cultural anthropological explanation has been elaborated by Goody. For over a decade, Goody (Goody, 1969, 1971, 1973a, 1973b, 1976; Goody and Buckley, 1973; Goody, Irving, and Tahany, 1971; Goody and Tambiah, 1973) attempted to contrast the African sexual behavior to that

of the Old World which he calls Eurasia. The latter comprises the region from Mediterranean to the Gangetic Plain, including China. Two factors are essential in understanding Goody's theory: production and religion.

Eurasia is defined as a social system characterized by farming practices that produce substantial surpluses on good soils. According to Goody, this high productivity led to the elaboration of laws and establishment of governments to oversee private and public goods. One consequence of the Eurasian system was the emergence of stratified societies, where marriages (usually monogamous) took place within strata of similar wealth. Hence, to prevent undesirable claims on inheritance, premarital sexual relations were prohibited, especially for women.

Goody explains female sexual behavior under the thesis of "diverging devolution", or the diffusion of a person's property outside the clan or lineage through bilateral inheritance at death or through a dowry at marriage (Goody, 1969). Simply stated, this explanation implies that, if property belongs to lineage rather than to individuals or nuclear families, then there would be less need to control partner selection. Under such assumption, there would be less control over premarital sex and no major distinction between children born in and outside wedlock (Lesthaeghe, 1986:215). This argument implies that African sexuality is associated with poor farming methods that do not generate

surplus and the lack of diverging inheritance (Goody, 1969).

The second factor central to Goody's theory is religion. Here again Goody contrasts Eurasia to Africa, contending that the key factor explaining moral restraint in the Old World was religious beliefs. For Goody, sexual behavior has been the center of morality and theological doctrine in Eurasia. Female purity was maintained with males helping in various ways to keep it as the noblest aspect of social life. Following Goody's religious hypothesis, Caldwell, Caldwell, and Quiggin (1989:194) contend that "Africans neither placed aspects of sexual behavior at the center of their moral and social systems nor sanctified chastity."

Based on limited anthropological research (Caldwell and Caldwell, 1987; Little, 1973), such assumptions about sexual permissiveness have been criticized for their over-generalization. Critics argue that female sexual behavior was not, and is still not, homogenous across the continent (Ahlberg, 1994; Le Blanc, Meintel, and Piché, 1991). Even within the same country, recent studies point to a wide variety of sexual patterns (Djamba, 1995a).

There is, nonetheless, another interesting but neglected anthropological assumption which focuses on differences in kinship system. Called patrilineal bias (Goethals, 1978:48-49), this hypothesis assumes that

permissive rules regarding premarital sex are mostly found in matrilineal societies, whereas restrictiveness is characteristic of patrilineal societies. This hypothesis will be tested using data from young women in Kinshasa.

Rational adaptation hypothesis

Premarital sexual activity can be associated with economic conditions, especially where women have limited access to financial resources (Elias and Heise, 1993; Philipson and Posner, 1995). Proponents of the rational adaptation hypothesis argue that the current sexual behavior of unmarried women is economically rational. Under the rational adaptation assumption, sexual relations are viewed as a means by which young women get economic benefits (Meekers, 1994:48). In their qualitative study on adolescent sexuality in Nigeria and Kenya, Barker and Rich (1992) argue that poverty was partly the cause of premarital sexual relations. Due to recent economic difficulties in Nigeria, the phenomenon of "sugar daddies" - older men who offer gifts to young women in exchange for sexual favors - is growing. In general, these sexual relations are not coercive. But, in Zaria, some respondents reported that female students who live far from schools are frequently forced to accept rides from men and then find themselves in the "owing position" (Barker and Rich, 1992:207).

Such a "dating up" practice - poor young females dating older wealthy men - can lead to devastating health problems. In many central African cultures, men are taught to prefer intercourse in a dry vagina, thus women learn to use a variety of astringent leaves and herbal preparations to attract or keep partners (Brown, Ayowa, and Brown, 1993; Schoepf, 1988:629). Because they mate with older men, these females are exposed to vigorous and long coitus that increase the likelihood of infection by sexually transmitted diseases. Typically, businessmen report that they prefer very young partners whom they assume are not infected. However, since such men are likely to have had many partners in the past, they constitute a high risk group (Schoepf, 1988:636). Though the economic perspective offers a promising avenue to the study of premarital sexuality in Africa, its hypothesis has not yet been empirically tested. One reason for that is the lack of an adequate conceptual framework such as that which the present study supplies.

Social disorganization theory

The third type of explanation, which derives from control theory (Hirschi, 1969), relates premarital sexual activity to change in social control. Called social disorganization, this theory assumes that premarital sexual activity is the result of the breakdown of social control that older persons had over the younger ones (Bleek, 1987;

Cherlin and Riley, 1986). Factors usually cited as correlates of the loosening of traditional social controls are formal education (Meekers, 1994), urbanization (Le Blanc, Meintel, and Piché, 1991), and mass media (Görgen, Maier, and Diesfeld, 1993).

The main assumption of the social disorganization theory is that these factors are associated with the adoption of a Western lifestyle which leads to deferred marriage while removing youth from parental surveillance (Bleek, 1987:144). Qualitative reports from a town in Burkina Faso show that television was the principal mechanism blamed for destroying customs and morals: "In the evening, whole families sit and watch love stories showing people fondling and caressing in the nude, and even having intercourse (Görgen, Maier, and Diesfeld, 1993:289)."

Such accounts, like the ones discussed above, should not be regarded as explanations; they represent, rather, hypotheses that require far more serious research before they can be accepted. Furthermore, most assumptions of social disorganization derive from parents' or adults' reports about young women's sexual conduct. Not only do their views possibly differ from these of young women (were they interviewed), but also social scientists who rely solely on these types of data seem to ignore the fact that

many factors held to promote sexual permissiveness are themselves highly dependent on age.

SUMMARY

Literature on sexual behavior in Africa shows considerable variations in the perception of female sexuality. In some societies such as the Shona of Zimbabwe or the Luba of Zaire, female virginity is still highly valued. But for others, like the Buganda of Uganda, adolescent premarital sexuality is socially accepted, even encouraged. Discussions of African female sexual behavior emerging from past studies are organized along three theoretical explanations. Based essentially on comparative approach, the anthropological explanation associates female sexual permissiveness with production and religion (Goody, 1969), and kinship system (Goethals, 1978). While most assumptions of the anthropological explanation based on production and religion have been challenged by recent data, the influence of kinship system has been neglected.

Other theories which seem relevant for the study of premarital sexual activity in Africa are rational adaptation and social disorganization. The rational adaptation or economic theory views current adolescents' sexual behavior as economically rational (Barker and Rich, 1992). Under this assumption, sexual relations constitute a means for achieving goals. The social disorganization theory attributes the loosening of older generations'

control over young women's sexual behavior to modern factors such as education, urbanization, and exposure to mass media (Meekers, 1994). Due partly to the lack of data and adequate analytical framework, most assumptions of these theories have not been tested. One objective of this study is to supply a conceptual framework under which the validity of these theories can be assessed.

CHAPTER 2

CONCEPTUAL FRAMEWORK AND METHODS

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

Female premarital sexual activity has different meanings for different people in different social contexts. Drawing from the literature reviewed above, a conceptual framework is proposed here that identifies some dimensions of family background which may affect premarital sexual behavior. These dimensions of family background are essential in testing assumptions of rational adaptation and social disorganization theories. The framework presented here is drawn from Coleman's model of social capital.

In a series of publications, Coleman (1986a, 1986b, and 1988) has developed a theoretical model that includes components from both the economic principle of purposive action and the sociological principle of social context. The author argues that the economists' assumption that an individual's action is wholly governed by the self-interested desire to maximize utility, or the sociologists' emphasis on social context which considers the actor as having no "engine of action" cannot completely account for behavior. Although other authors have also cautioned against the oversocialization of the concept of action (Wrong, 1961), and the limitations of the principle of purposive action (Ben-Porath, 1980), Coleman's work represents the first step towards the conceptualization of

a sociological model that takes into account institutional resources and personal characteristics in determining behavior.

Formally, Coleman distinguishes three types of family resources, or forms of capital, that are essential in social action: financial capital, human capital, and social capital. Financial capital provides the physical resources that can aid socialization and the financial resources that smooth family problems (Coleman, 1988:S109). In the absence of reliable information on income, family's wealth is conceptualized as household amenities or physical capital. Under the rational adaption hypothesis, the initiation of premarital sexual activity is expected to be negatively associated with financial capital.

Coleman (1988:S109) proposes to measure human capital using parents' education. Though this conceptualization may be appropriate for the American system of the family, it must be redefined for the African family. In Africa, human capital is not limited solely to biological parents because most youths receive information about reproductive health from adult relatives, especially from those living with them in the same household. Therefore, human capital must be extended to educational attainment of all adults in the household.

Human capital represents the stock of educational resources for the child. This concept allows to assess the

validity of the social disorganization theory through the educational component. Because social control is basically vertical (from elders to younger people), human capital may be a better measure of educational influence on sexual behavior than the girl's own education. So, including human capital in the analysis will improve our knowledge about how education affects the initiation of premarital sexual activity.

Three scenarios are possible under the assumption of educational effects on premarital sexual activity. First, according to the social disorganization theory, both the girl's own education and household educational level, as measured by human capital, are expected to be positively correlated with initiation of premarital sexual activity. Second, the two educational variables may affect the dependent variable differently. For example, individual education may have a positive effect, while human capital's influence is negative and vice versa. The last possible situation would be the one under which either none, or only one, educational variable is significantly associated with premarital sexuality.

The third component of Coleman's family background model is social capital. First introduced by Loury (1977; 1987), the term social capital describes different resources that are available in the family and in the community, and that are useful for the cognitive or social

development of young people (Coleman, 1990:300). The main difference between social capital and other forms of capital (financial and human for example) is that "social capital inheres in the structure of relations between persons and among persons" (Coleman, 1990:302).

In this study, I extend the concept of social capital to the analysis of premarital sexual behavior. Just as social capital in the family plays a role in the creation of human capital in the rising generation (Coleman, 1988:S109), so does it for the transition to sexual activity. Coleman proposes several indicators of social capital which include number of siblings, birth order, presence of both parents, talking about personal matters with the child, mother working outside the home, parental expectations for children's education, and number of times the child has changed school.

Although it would be more appropriate to evaluate the importance of each of these indicators of social capital in modeling premarital sexuality, only one indicator - number of siblings - is used due to data limitations and nature of family relationships in Kinshasa. "The number of siblings [...] represents a dilution of adult attention to the child" (Coleman, 1988:S111). This is probably a good measure of social capital in societies with low divorce rates, and where most mothers do not work outside the home.

Moreover, recent work in Africa shows that the structure of the family and the occupational status of the parents are not significant determinants of young women's reproductive health behavior (Okonofua, 1995:434). This is probably because, in these societies, the socialization of young people is realized within the context of extended family. This does not, however, rule out the possibility that the consideration of all types of social capital would produce better results. In fact, social capital is not confined to the sole family environment; it may include community and other families as well. Even the frequency of attendance of religious ceremonies (religiosity) which I consider as an individual level variable in this study can be viewed as a type of social capital (Coleman, 1988:S114-S115).

Social capital is used here as a control variable to account for the allocation of financial and human capital within the household. Since interaction between adults and children may decrease within larger families, social capital is expected to increase the likelihood of engaging in premarital sexual activity. Although Coleman suggests to measure social capital through number of siblings (Coleman, 1988:S111), like human capital, the concept of social capital in Africa should include all children living under the authority of the same household head.

In social demography, behavioral changes are often analyzed as structural-functional forces. These forces are held to be induced especially through urban residence, mass media, religion, and kinship system. Under the social disorganization theory, urban residence and mass media are expected to be positively associated with premarital sexual activity. Usually established by the family, religious affiliation and kinship system can be considered as control variables. In Zaire, protestant churches support family planning programs which suggests that women in these religious groups may be more likely to use contraceptives than their catholic counterparts.

The impact of kinship on premarital sexual activity is expected to mediate through the process of marriage. In matrilineal ethnic groups the bride's family fixes the amount of money that the husband must pay prior to taking the wife. In addition to the high marriage payment she brings to her parents, a matrilineal wife keeps strong ties with her family of origin, to which also belong all her children. In contrast, patrilineal groups do not fix the amount of marriage payment which is usually smaller compared to matrilineal ethnic groups. Yet, in patrilineal system, the wife and her children belong to the husband's family. Known as patrilineal bias (Goethals, 1978), this difference in marriage and family affiliation suggests that patrilineal groups may impose more restrictions over female

premarital sexual behavior than would do matrilineal populations (Coleman, 1966; Eckhardt, 1971; Murdock, 1964).

Biological and behavioral theories provide conceptual models of sexual development from which adolescent pregnancies, sexually transmitted diseases, and the AIDS epidemic can be analyzed (Hagenhoff et al. 1987; Rugg, Hovell and Franzini, 1989). In these models sexual behavior is considered as a function of both biological (hormonal changes with age) and social processes (peer pressure). But the influence of capital within the family context has not been investigated.

The conceptual framework in Figure 1 shows some important linkages between potential determinants of premarital sexual behavior from which the research hypotheses discussed here are derived. With the exception of family background, all factors can be considered as both predictors and intervening variables of sexual activity. In this figure, premarital sexual behavior comprises the three types of dependent variables which will be examined in subsequent chapters: age at first sexual intercourse, number of premarital sexual partners, and contraceptive use at first sexual intercourse.

AIDS knowledge is expected to reduce the risk of having premarital sexual experience and to increase the likelihood of having a contracepted first sexual experience. These hypotheses and linkages shown in Figure 1

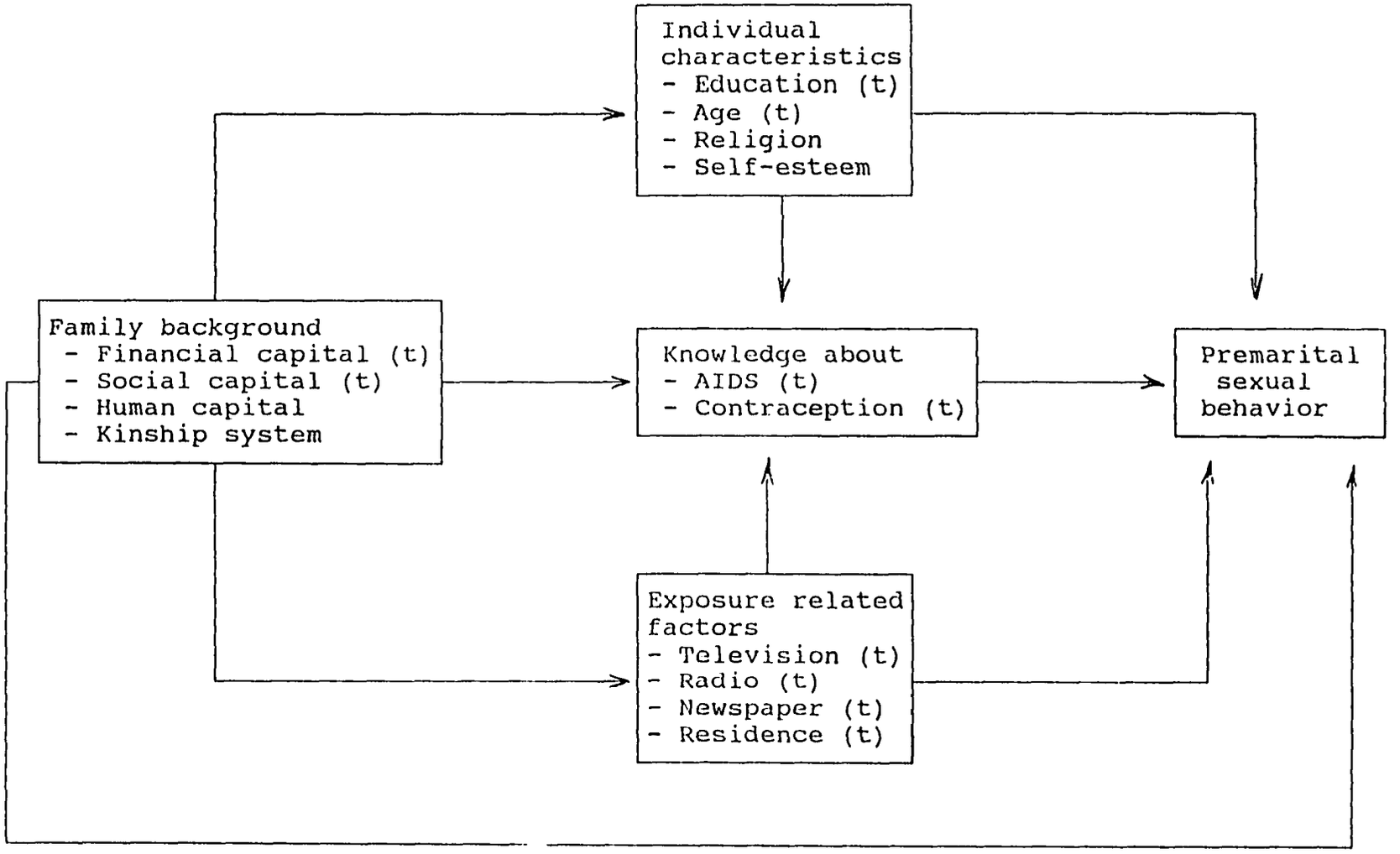

Figure 1. Conceptual Framewor for the Study of Premarital Sexual Behavior

represent some major flows of influences between main sets of factors. In this figure, a (t) indicates a time-varying variable. The analysis bears on selected connections between most relevant factors.

THE SETTING: KINSHASA IN 1995

According to the demographic projection based on the 1984 census data (the most recent census), there were about 4,787,000 inhabitants in Kinshasa in 1995. The female population aged 15-24 years was 415,000, representing 18 percent of the total female population and about 9 percent of the entire population of Kinshasa (INS, 1993). Along with a total fertility rate usually estimated to over seven children per woman (Djamba, 1994; INS, 1991) and life expectancies at birth of 51 and 55 years respectively for men and women, Kinshasa is also a city of high immigration (INS, 1993:8-9).

The year 1995 had several socio-political implications in Zaire, and in Kinshasa in particular. According to the political agenda set by the National Conference, the transition to a democratic government was to be completed in June 1995. This implied the emergence of a new political regime which would have replaced the present military regime in power since 1965. Any hope for a democratic government was diminished when the current political regime announced in June 1995 the continuation of the transitional process for another term of two years.

One consequence of the stalled political transition was a decrease in the general welfare of the population. Most people in Kinshasa agreed that the country was under a long term economic crisis, which was partly reflected in the hyperinflation of the Zairian currency. For example, during the time of the survey, the value of the Zairian currency (called Zaire) decreased from about 5,000 Zaires per US dollar in June 1995 to over 14,000 Zaires per US dollar in November 1995. Yet, the salaries of most employees remained unchanged during the same period.

This economic crisis has led many workers to adopt several survival strategies ranging from the creation of informal business activities to return migration. Many employees sent to work in the countryside have now returned to Kinshasa, mostly because they have not been paid for months. Another category of return migrants includes those of urban employees who go back to their native villages or towns. The majority of people belonging to that category of migrants are natives of provinces sharing borders with the capital city, Kinshasa.

Another consequence of the current economic situation in Kinshasa is the irregularity of schooling. Due to low wages which are also paid on an irregular basis, teachers, like other public service workers, have to engage in other activities to make ends meet. Private schooling is growing in Kinshasa, but it is still unaffordable for many parents.

This economic downward may have reduced parents' authority over their adolescent girls, or changed young women's expectations for future roles.

KINSHASA YOUTH REPRODUCTIVE HEALTH SURVEY

Kinshasa Youth Reproductive Health Survey (Kinyouth) was designed in order to obtain data on the sexual, contraceptive, and reproductive behavior of young women in Kinshasa. The survey was conducted from June to November 1995. The eligible population for the study was women aged 14-24 years when households were screened for the study.

The choice of this age-group was based on the distribution of the hazard function of first intercourse estimated from a 1991 survey of currently married women in Kinshasa. For these women, the probability of having had premarital intercourse was very close to 1 at the age of 24 years (Djamba, 1995a:460). In addition, research now widely recognizes that, in sub-Saharan Africa, women below the age of 25 years constitute the highest AIDS-risk group (World Health Organization, 1993). Also, the life course between 14 and 24 years is generally regarded as a key transitional period during which young women first confront choices that have implications for their roles and status later in the life (Brewster, Billy, and Grady, 1993:173).

Because the study aimed to gather data on both ever-married and never-married young women, the survey was fielded to a large sample. Given the trends in proportions

of ever-married women from previous studies (see Appendix A), I estimated that a random sample of 2,000 women aged 14-24 years provided an acceptable proportion of married women. The estimation predicted some 328 married women in the sample.

Although there was no sampling frame at hand, efforts were made to draw a representative sample. A two-staged sampling design was involved. In the first stage of sample selection, 8 *quartiers* (the smallest administrative unit) were chosen as representative of all socioeconomic strata in the city. In these *quartiers*, all households with eligible women were enumerated. In the second stage, a systematic sample of 2,000 women was drawn from the list of eligible respondents using a random start and constant fractional interval. Only one respondent was selected per eligible household.

The names and address of every woman who was selected, along with the names of the head of the household, were written on the cover page of the questionnaire. The interviewers were instructed to interview only these women whose names were on the cover pages. Overall, interview response rates were high; about 96 percent of respondents initially selected were successfully interviewed. Even though the questionnaire was written in French, interviews were usually conducted in Lingala, the local language. But many key terms (concepts related to sexual behavior) were

often discussed in French. This is because sexual terms and related expressions are believed to be less delicate in French than in Lingala.

Interviewers were selected among female university students with some fieldwork research background and other young women with at least high school degree. These women received a week of training on the objectives of the study, interviewing techniques, and questionnaire completion. Ten candidates were finally selected to conduct interviews. Interviews were usually conducted from 9:00 a.m. to 5:00 p.m. Identified respondents who were not at home at the time of an initial visit were marked for a second, and third call-back interview. After that, they were replaced by other eligible respondents. The selection and replacement of respondents were reserved to the sole authority of the principal investigator (the author of the present study). The average duration of interviews was about one hour and twenty-seven minutes.

At the end of the first week, the interviewer with the highest fieldwork performance was selected to work as supervisor. All completed questionnaires were handed over to the supervisor on a daily basis. The supervisor checked each questionnaire to ensure that all responses were internally consistent. If not, the interviewer was asked to return to the respondent to resolve any errors. A certain proportion of respondents were reinterviewed by the

principal investigator as a means of quality control. A debriefing session was held every morning to discuss experiences and problems encountered in the field, and to instruct interviewers about any observations that might improve the quality of their work. A total of 2,000 questionnaires were completed. The data were edited, coded and processed locally by three pre-trained agents, under the supervision of the principal investigator.

EVALUATION OF THE DATA

This survey collected data on over 600 variables. The English version of the questionnaire is given in Appendix D. The present study uses only a relatively small number of these variables to test some assumptions about premarital sexual activity. This section discusses the quality of the data, therefore, only those variables used in the evaluation process are defined here. More information about the measurement and definition of these and other variables appears in subsequent chapters.

Regardless of the procedure by which measurements are taken, they must be reliable and valid. The reliability refers to the extent to which different observers agree on their observations (Kidder 1981:266), or how reproducible the results are under the same experimental conditions. The present survey represents the first household-based survey of a representative sample of young women in Kinshasa. Therefore, no study is directly comparable to it.

Nonetheless, data from a 1989 pilot survey of high school students in Kinshasa are used to assess the reliability of the present data.

The 1989 survey gathered data on sexual activity and AIDS knowledge from 581 girls and 676 boys enrolled in a high school of Kinshasa (Piripiri et al. 1989). The subsample of girls from the 1989 survey is compared to the corresponding subsample of unmarried high school students from of the 1995 survey. Although these two surveys were based on different methodological approaches, the statistics in Table 1 suggest that data gathered in these surveys about the initiation of sexual activity are similar. This implies that current data are reliable.

Table 1. Comparison of selected statistics from the 1989 survey and the 1995 survey in Kinshasa

	Mean value	
Variable	1989	1995
Age at menarche	14.0	14.0
Age at first intercourse	16.9	16.6
Had sexual intercourse	43.7	40.9
Age at survey	18.0	17.5
Number of observations	581	941

Another assessment of the quality of data concerns the validity of estimates. Validity refers to the extent to which the recorded observations represent what they are supposed to measure (Kidder, 1981:267). One way to assess the validity of the data is through the magnitude of sampling errors. The sample of young women interviewed in 1995 in Kinshasa is only one of many samples that could have been selected from the same population, using the same survey design and sample size. Each of these samples would yield results that are more or less different from the results of the present sample. The sampling error is thus a measure of the variability between all these potential samples. This type of error is usually measured in terms of the standard error for a given statistic.

The quality of the 1995 data is evaluated for a number of variables arbitrary selected from the list of the variables of major interest for this study. Levy and Lemeshow (1991:82) have shown that "when a list is in a random order [...] the variance in the estimated mean, total, or proportion obtained in systematic sampling is approximately that appropriate for simple random sampling." This condition was fulfilled for the 1995 survey. The sampling frame contained no particular ordering or periodicity. Therefore, the estimates presented in this section derive from basic assumptions of simple random sampling.

For each variable, the type of statistic calculated and the base population are defined in Table 2. In line with the current methodological approach for evaluating survey data (Kourguéni, Garba, and Barrère, 1993; also available in other DHS country reports), Table 3 gives the value of the statistic (R), its standard error (SE), the relative standard error (SE/R), the 95 percent confidence interval (R-2SE and R+2SE), and the number of observations from which the estimate is calculated (N). Overall, the relative standard errors for this survey are small. Therefore, the sample can be considered fairly precise.

For example, for the total number of sexual partners, the relative standard error of the estimated mean for all women aged 14-24 is 0.068. The corresponding confidence interval can be interpreted as follows: there is high probability (95 percent) that the true average number of sexual partners among all women aged 14-24 years in Kinshasa is between 1.106 and 1.454. In the same way, there is a high probability that the percentage of women aged 14-24 years in Kinshasa in 1995 who had sexual intercourse before marriage is between 43.3 and 47.7. Among those who were sexually active prior to marriage, the true percentage of those who used contraceptives at their first sexual intercourse is between 13.8 and 18.6.

Table 2. Definition of estimates used in assessing the validity of the data

Variable	Estimate	Base population
Age at survey	Mean	All women
Had intercourse	Proportion	All women
Had premarital intercourse	Proportion	All women
Age at first intercourse	Mean	Sexually active
Contracepted first premarital intercourse	Proportion	Sexually active prior to marriage
Ever-married	Proportion	All women
Number of sexual partners	Mean	All women
Residence in Kinshasa (years in Kinshasa)	Mean	All women
Matrilineal	Proportion	All women
Human capital	Mean	All women
Financial capital	Mean	All women
Social capital	Mean	All women
Religiosity	Mean	All women

Table 3. Evaluation of the validity of the data

Variable	Estimate (R)	Standard error (SE)	Relative error (SE/R)	Confidence intervals R-2SE	Confidence intervals R+2SE	N. of cases (N)
Age at survey	18.354	0.067	0.004	18.220	18.488	2000
Had intercourse	0.523	0.011	0.021	0.501	0.545	2000
Had premarital intercourse	0.455	0.011	0.024	0.433	0.477	1965
Age at first intercourse	16.694	0.064	0.004	16.566	16.822	1034
Contracepted first prem. sex	0.162	0.012	0.074	0.138	0.186	895
Ever-married	0.166	0.008	0.048	0.150	0.182	1997
Number of sexual partners	1.280	0.087	0.068	1.106	1.454	1988
Residence in Kinshasa	12.479	0.093	0.007	12.293	12.665	2000
Matrilineal	0.549	0.011	0.020	0.527	0.571	1963
Human capital	4.173	0.056	0.013	4.061	4.285	2000
Financial capital	3.171	0.028	0.009	3.115	3.227	2000
Social capital	3.386	0.045	0.013	3.296	3.476	1983
Religiosity	4.607	0.099	0.022	4.409	4.805	1960

SUMMARY

Family background variables are key factors of the socialization and social control, especially in the area of premarital sexual behavior. The conceptual framework proposed here is based on Coleman's work which defines three types of family resources, or capital, that are assumed to affect children's socialization: financial capital, human capital, and social capital (Coleman, 1988). Financial capital is essential in testing assumptions of the rational adaptation theory. Human capital is a good, but partial, measure of the social disorganization hypothesis. A fuller assessment of the social disorganization theory requires the consideration of respondent's education, urban background, and mass media exposure. To the extent that it decreases the "amount" of financial and human capital per child, social capital is introduced in the framework of premarital sexual behavior as a control variable. Initially conceived for the American type of family, these three types of capital must be adapted to the African context of extended family.

Data upon which these theories are tested were gathered from a representative sample of 2,000 women aged 14-24 years living in Kinshasa in 1995. The comparison of these data with information from a 1989 pilot survey in Kinshasa showed very similar patterns for the variables selected. Also, the analysis of the quality of the 1995

data showed that most estimates have very low relative errors. This evaluation suggests, therefore, that the present data are of acceptable reliability and validity.

The year of 1995 bears a bad connotation in the minds of many Zairians. Whereas the population was waiting for the emergence of a democratic regime in June 1995, the current political leaders announced the beginning of another transitional political period of two years. One consequence of this stalled political transition has been the continuation of the economic crisis. There was, nonetheless, no riot nor public tumult in Kinshasa in 1995, a situation which was good for timely completion of the Kinshasa Youth and Reproductive Survey.

CHAPTER 3

TRANSITION TO FIRST PREMARITAL SEXUAL INTERCOURSE

INTRODUCTION

The focus of research on human sexual behavior in the social sciences has changed dramatically in the last two decades. This change reflects a general trend toward greater tolerance for a variety of forms of sexual conduct (Laumann and Gagnon, 1995), and an urgent need for determining high-risk behaviors associated with the proliferation of sexually transmitted diseases, especially AIDS (Bertrand et al. 1991; Brown, Ayowa, and Brown, 1993), and unwanted (mostly premarital) pregnancies (Okonofua, 1995). Despite this growing interest in human sexuality, scientific inquiry in this area remains a daunting task in sub-Saharan Africa where good data are rare and methodological approaches very limited.

There is evidence that most HIV infections in sub-Saharan Africa are transmitted through heterosexual intercourse. Data from a 1993 World Health Organization report showed that the number of women infected with HIV exceeds that of men and that the vast majority of female AIDS patients are under the age of 25 (World Health Organization, 1993). The most important risk factors for seropositivity among heterosexuals in the region are number of sexual partners, frequency of unprotected intercourse, and prostitution (National Research Council, 1992).

It is now established that age is associated with power and influence in interpersonal relationships (Bandura, 1977; Parsons and Bales, 1955), initiation of sexual activity (Brewster, 1994; Djamba, 1995a; Hovell et al., 1994), frequency of intercourse (Wang and Lin, 1994), and risk of HIV infections (UNDP, 1992). Other things being equal, all these phenomena are greatly influenced by age of initiation of the first sexual intercourse. This chapter examines the factors associated with the initiation of first premarital sexual activity in Kinshasa, using data from a representative sample of 2,000 women aged 14-24 years interviewed in 1995.

The analysis is guided by Coleman's (1988) social capital framework under which family background is assumed to play a determinant role in socialization of children. Adapted to the analysis of premarital sexual activity, this conceptual framework presumes that sexual behavior is a function of inherent reinforcement, and of socio-cultural factors which include family resources or capital. The results are discussed along the three major theoretical perspectives on premarital sexual activity in Africa. These theories, which are described in the first chapter include the anthropological thesis of patrilineal bias, the economic hypothesis of rational adaptation, and the social disorganization theory.

METHODS

The data supporting this research derive from a representative sample of 2000 women aged 14-24 years interviewed in Kinshasa in 1995. The analysis undertaken in this chapter uses information on the initiation of the first premarital intercourse from all respondents. Since the sample includes also ever-married women, efforts were made to capture information only for the period prior to marriage for ever-married women. For these women, premarital sexuality was obtained indirectly by subtracting age at first sexual intercourse from age at first marital cohabitation. Thus, a woman for whom this difference is greater than zero is said to have had sexual intercourse before marriage, otherwise she had no premarital sexual experience.

Table 4 shows age patterns of transition to premarital sexual activity for never-married, ever-married, and for all women in the sample, using a life-table approach. Although the data in Table 4 show slightly higher probability of having premarital sexual experience at all ages among never-married than ever-married women, the difference between the two groups is not statistically significant. This preliminary result suggests that marital status may not be a good predictor of premarital sexual experience. In contrast, irrespective of marital status,

Table 4. Probability of having first premarital sexual intercourse at a given age

Age at first premarital intercourse	Never-married	Ever-married	All women
< 14	0.042	0.053	0.045
14	0.112	0.095	0.107
15	0.280	0.250	0.272
16	0.483	0.377	0.454
17	0.668	0.527	0.630
18	0.808	0.648	0.768
19	0.914	0.717	0.870
20	0.960	0.817	0.933
21	0.979	0.870	0.961
22	0.998	0.899	0.989
23	1.000	0.899	0.996
24	--	--	--
Median age	17.09	17.82	17.26

age appears as a strong factor determining the onset of sexual activity.

One feature of the present study is the particularity of the survey instrument. The questionnaire in Appendix D (especially in its section 3) has a life-history format. The life course research method is very useful for studying transitional events (see Blossfeld, Hamerle, and Mayer, 1989, pp.22-25, for a discussion of the advantages of the life history research method over the cross-sectional approach). Since most variables are time-varying or age-dependent covariates, the multivariate analysis is performed using the discrete-time event-history procedure, based on a person-year file.

The person-year file was created using individuals' life-history information from the age of 10 onward. In this file, each respondent has a separate record for each year of age from the age of 10 until the age at which she either had her first premarital sexual intercourse (if she was sexually active prior to marriage), age at marriage (if she had her first sexual intercourse after marriage), or age at survey (if she is not yet sexually active).

For example, an unmarried woman who had first sexual intercourse at age 15 would have six observations in the person-year file, for ages 10 through 15 inclusive. Similarly, there would be the same number of records (six) for a woman who did not engage in premarital sexual activity but who married at age 15. However, their scores on dependent variable will be different. The never-married woman has five records for which she scores 0 on the dependent variable, and one - the sixth record - for which she has the score of 1 on the dependent variable. The woman who was a virgin at marriage at the age of 15 will have 0 on all her six records. Each woman who was 24 years old and virgin at the time of survey contributed 15 records in the person-year file. The procedure yielded a person-year file with 21,938 records.

This approach treats entry into marital union as a competing risk of initiation of premarital sexual activity (Allison, 1984); respondents who married without prior

sexual experience were removed, at the time of marriage, from the risk of experiencing premarital sexual intercourse. By doing so, it assumes that marriage and initiation of sexual activity are two statistically independent events. This assumption which has been proven consistent in previous work in Kinshasa (Djamba, 1995a), implies that there is no significant difference in age at first sexual intercourse between ever and never-married women.

In the present data the average ages at first sexual intercourse are 16.81 and 16.64, and for age at first premarital sexual intercourse 16.79 and 16.62, respectively, for ever-married and never-married women. Once again, the two categories of respondents are not statistically different, and because the analysis focuses on the premarital period, all women are included in the analysis of premarital sexual behavior.

One methodological advantage of the present study is that most of the variables used here were collected with an event history type questionnaire. Ten out of the 16 explanatory variables included in the analysis of premarital sexual behavior have values at each single age, from the age of 10 onward. With this type of data, it is possible to determine the impact of each explanatory variable on the dependent variable, at different ages.

The time-varying explanatory variables are age, education, financial capital, social capital, residence, television viewing, radio listening, newspaper reading, contraceptive knowledge, and AIDS-related knowledge. Age, as of the person-year observation, represents the time axis defining the onset of first premarital sexual intercourse. Education, which measures the number of years of schooling, was constructed from the level of schooling and the class attained (not necessary completed) each year from the age of 10 onward.

Financial capital is a vector of household amenities at each age of exposure to the risk of having premarital sexual intercourse. It is an index representing the household's ownership of some goods ranging from radio to car or truck. Since there are seven household goods, the total number of items per person-year is seven (see column 332 of the Questionnaire). Such a measure of financial capital is not affected by household size or social capital, because it captures "living standards that can be shared with varying numbers of members without being in any way diminished" (Lloyd, 1995:14).

Social capital is a vector of sibship size measuring the number of children. The latter is conceptualized here as number of household members from age 0 up to the respondent's age. The "exposure factors" and contraceptive and AIDS-related knowledge are dichotomous variables

representing whether or not the respondent watched television, listened to the radio, read newspapers, lived in Kinshasa, had contraceptive knowledge, or knew about HIV/AIDS at each age.

The non time-varying variables are religion and religiosity, self-esteem, human capital, and kinship system and ethnicity. Religion is a categorical variable indicating the respondent's type of religious of affiliation. Religiosity measures the frequency of attendance of religious ceremonies during the four weeks preceding the interview. Kinship is a dichotomous variable included to test the patrilineal bias hypothesis. This variable is followed by ethnicity which divides respondents in five ethno-cultural groups. Human capital measures the number of household members with some secondary education or better, at the time of the interview.

The last variable is self-esteem. This variable was created from the Rosenberg's (1965) scale. The Rosenberg scale measures the overall self-esteem, or what Wylie (1974:180) called global self-regard, using a Guttman type-scale. Although the Rosenberg scale has been widely used and has a proven reliability (Rowe and Rodgers, 1994; see particularly Ockerman, 1979 for a critical review), I used factor analysis to select items that best load together. The results of this internal factor analysis showed that six factors (items 501, 502, 504, 506, 507, and 508 of the

Questionnaire) best measure the self-esteem of respondents. Therefore, these six items were added to obtain the self-esteem variable used in the present study.

For each self-esteem item in the original scale, 4 represents "strongly-disagree", whereas 1 represents "strongly-agree". These values were recoded to represent an ascendent trend in self-esteem before creating the self-esteem variable. The new values for each item range from 0 to 3, with 0 indicating "strongly-disagree" and 3 "strongly agree." So, the resulting self-esteem index ranges from 0 to 18.

Although the inclusion of non-time varying variables may have some unintended implications on the results, such impacts will probably be negligible here for two reasons. First, it is reasonably and intuitively acceptable to consider some of these variables as fixed over the life course; this is the case of ethnic affiliation and kinship system which do not vary in time. To the extent that it is usually established by the family, religious affiliation may also be assumed invariable for the majority of respondents. Only three variables which are included as non time-varying covariates - religiosity, self-esteem, and human capital - probably need to be considered with some cautions. Second, even these last three variables, being measured within the same timeframe for all respondents

reduces the bias which might results from the fixed character of such covariates.

The mean values of all these variables are presented in Table 5. Since these data derive from the person-year file, the mean age of women in the person-year file is relatively small (15.78 years). Nonetheless, there are remarkable variations in both educational variables. The average number of years of schooling in this file is 3.993, but the corresponding standard deviation is 3.475. The mean value of human capital is 4.176, with a standard deviation of 2.487.

About half of the observations are of Catholics; Protestants' records count just for 19.2 percent. The average number of times respondents attended religious ceremonies is 4.656, but there are large variations in the sample; the standard deviation is almost equal to the mean. About 45 percent of records are of women of the Kwilu-Kwango ethnic group; the Kwilu-Kwango are from the neighboring province of Bandundu. Since the majority of respondents are natives of Kinshasa, about 85 percent of records are of people who lived in Kinshasa during the exposure time to first premarital sexual activity.

More than half of the observations are of women who had heard of HIV/AIDS. The corresponding value for contraceptive knowledge is about one third. At least half of the records are of those who have access to some type of

Table 5. Mean values of variables used in the event history analysis of transition to first premarital sexual intercourse

Variable	Mean	Standard deviation
Dependent variable (having premarital sex)	0.309	0.462
Age at time of person-year observation	15.780	4.134
Education (years of schooling)	3.993	3.475
Religion		
Catholic	0.502	0.500
Protestant	0.192	0.394
Other	0.307	0.461
Religiosity	4.656	4.329
Self-esteem	14.853	2.884
Kinship		
Matrilineal	0.542	0.498
Patrilineal	0.458	0.498
Ethnicity		
Bakongo	0.117	0.321
Kwilu-Kwango	0.447	0.497
Bangala	0.217	0.412
Luba	0.136	0.343
Other	0.083	0.276
Financial capital	2.275	1.867
Human capital	4.176	2.487
Social capital	2.077	2.199
Residence in Kinshasa	0.849	0.358
Television viewing	0.772	0.420
Radio listening	0.676	0.468
Newspaper reading	0.496	0.500
Contraceptive knowledge	0.358	0.479
AIDS knowledge	0.562	0.496
Person-year observations	21,938	

mass media. The mean value of financial capital shows that most women who contributed to the person-year file lived in households which had only about two of the seven items listed in the questionnaire. The descriptive statistics of the original sample of 2,000 women are given in the Appendix C.

DETERMINANTS OF FIRST PREMARITAL SEXUAL ACTIVITY

This section contains results from a multivariate analysis of initiation of premarital sexual activity. I carried out the analysis in three steps. First, I examined the age-effects of each time-varying variable individually on premarital sexual activity. Second, I analyzed these effects in more complex models where all other variables are added progressively in the regression equation. Third, I examine interaction effects suggested in previous work.

Data analyzed in this chapter derive from the life-history file containing some 21,938 person-year observations. In that file, the dependent variable takes a dichotomous form. Therefore, all analyses undertaken in this chapter are based on discrete-time logistic regression models. There are two other reasons for choosing this statistical procedure. First, the life history events were recorded in discrete time units (years). Second, many explanatory variables considered here vary with respect to time (Allison, 1982:75; Richter et al. 1994).

Age-effects of time-varying covariates

Time-varying variables are important for policy implications because they allow us to determine when an intervention action can best affect sexual behavior. Models examining these age-effects are given in Appendix Tables B1 to B9. They represent interaction with age at person-year. Since financial capital, social capital, and education are continuous variables, they were dichotomized prior to creating the interaction terms. Hence, financial capital and social capital have two categories: 0, "low" (for values from 0 to 3), and 1 "high" (for values higher than 3). The corresponding categories for education are 0, (for values from 0 to 6 years of schooling), and 1 (for 7 years or more).

In each of these Appendix Tables, the reference category includes records of respondents whose values on the corresponding time-varying variables are 0. In other words, these tables allow me to see if the influences of the time-varying variables on the initiation of premarital sexual intercourse are significantly related to age. The results show that all models are statistically significant, and that most associations provide a clear pattern of an age-effect.

The effects of education (Table B1), financial capital (Table B2), and social capital (Table B3) are positive and they are overall significant from age 10 to age 20. The

estimates of these variables become negative but mostly nonsignificant for those who remained virgins after the age of 20. The age-effect of residence in Kinshasa in Table B4 suggests that living in this city at younger ages increased the risk of engaging in premarital intercourse. But for those who remained virgins after their 17th birthday, being in Kinshasa greatly reduced the risk of having premarital sexual intercourse.

Interestingly, both contraceptive (Table B5) and AIDS knowledge (Table B6) were negatively associated with initiation of premarital sexual intercourse at all ages. More specifically, data on Appendix Table B5 suggest that providing contraceptive information to girls from the age of 17 greatly reduced their chances of having premarital sexual intercourse. In contrast, knowledge of AIDS seems to effectively lead to premarital sexual restrictiveness at all ages. Apparently, exposure to mass media does not increase the likelihood of having premarital sexual intercourse. Rather, the data in Appendix Tables B7, B8, and B9 show that exposure to radio, television, and printed press generally reduces girls' risk of premarital sexual activity.

Multivariate additive models

In this part, I examine the additive effects of all variables on initiation of first premarital sexual intercourse. Unlike in the previous section, no

transformation is made for education, financial capital, and social capital. These and all other variables are analyzed with their original values. The results are presented in Table 6 in a format which allows to see the relative contribution of each group of variables representing the four blocs of interest in the conceptual framework in Figure 1.

The comparison of likelihood ratio across models in Table 6 shows considerable improvement in model fit when more variables are added in the regression equation. More important, all family background factors, exposure variables, and reproductive health related variables are significant. This is an indication that the conceptual framework constructed for this study includes better variables above the usual individual level characteristics.

The graphic representation of the duration density function of the transition to first premarital sexual intercourse in Figure 2 reveals a bell-shaped pattern. Therefore, an age quadratic specification is included in all models of premarital sexual behavior. The first model in Table 6 is the baseline-type model which contains only individual characteristics: age, education, religious affiliation, religiosity, and self-esteem. The second model includes all the variables from the previous model plus family background variables. The exposure variables are added in the third model. Finally the fourth model contains

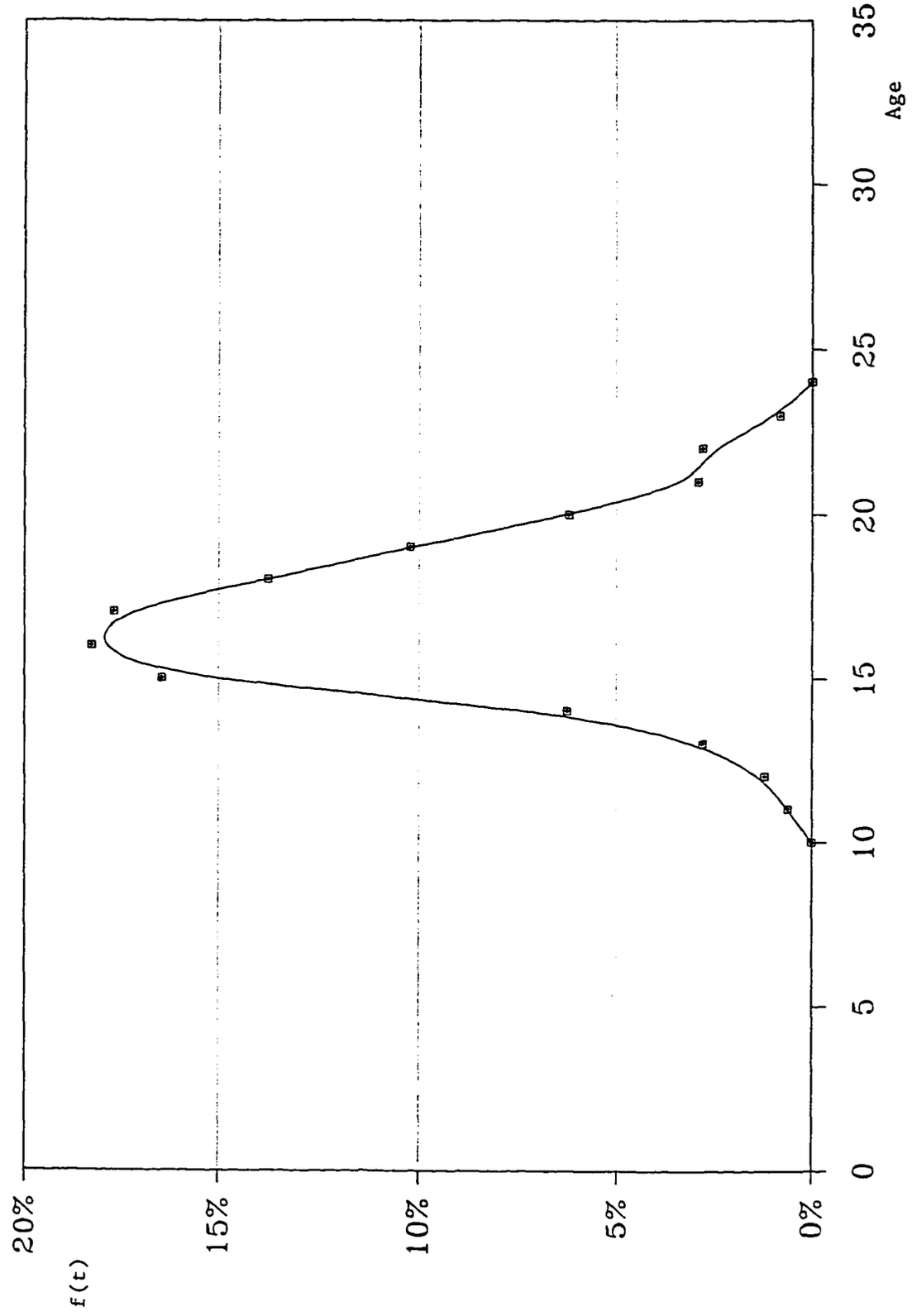

Figure 2. Duration Density Function of the Transition to First Premarital Sexual Intercourse

Table 6. Event history analysis of the transition to first premarital sexual intercourse: Simple additive models

	Model I		Model II		Model III		Model IV	
Variable	B	SE	B	SE	B	SE	B	SE
Age single years	0.347***	0.054	0.357***	0.056	0.474***	0.057	0.632***	0.058
Age Squared	-0.020***	0.002	-0.019***	0.002	-0.022***	0.002	-0.025***	0.002
Education	0.211***	0.007	0.170***	0.008	0.170***	0.008	0.173***	0.008
Religion								
Catholic	-0.095*	0.044	-0.080+	0.045	-0.068	0.046	-0.030	0.046
Protestant	--	--	--	--	--	--	--	--
Other	0.015	0.048	0.090+	0.049	0.053	0.049	0.096+	0.050
Religiosity	-0.006	0.004	-0.011**	0.004	-0.007+	0.004	-0.009*	0.004
Self-esteem	-0.048***	0.006	-0.052***	0.006	-0.034***	0.006	-0.029***	0.006
Kinship								
Matrilineal			0.180***	0.041	0.187***	0.041	0.139***	0.042
Patrilineal			--	--	--	--	--	--
Ethnicity								
Bakongo			0.203**	0.078	0.224**	0.079	0.254**	0.080
Kwilu-Kwango			0.503***	0.062	0.525***	0.062	0.525***	0.064
Bangala			0.495***	0.061	0.503***	0.062	0.501***	0.063
Luba			--	--	--	--	--	--
Other			0.492***	0.079	0.506***	0.080	0.503***	0.081
Financial capital			0.111***	0.015	0.145***	0.015	0.133***	0.015
Human capital			0.008	0.007	0.025***	0.008	0.023**	0.008
Social capital			0.067***	0.008	0.077***	0.008	0.076***	0.009
Residence in Kinshasa					-0.212***	0.055	-0.169**	0.056
Television viewing					-0.322***	0.048	-0.282***	0.049
Radio listening					-0.268***	0.044	-0.234***	0.045
Newspaper reading					-0.284***	0.039	-0.232***	0.040
Contraceptive knowledge							0.350***	0.052
AIDS knowledge							-1.043***	0.047
Constant	-1.680***	0.394	-2.751***	0.412	-3.621***	0.422	-4.938***	0.433
- 2 LOG L	21,204		20,371		20,072		19,543	
Person-years	21,271		20,712		20,712		20,712	

+ $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

all the variables from Model III plus contraceptive and AIDS knowledge variables.

One major concern in anthropological research on premarital sexual behavior has been the role of descent rules (Goethals, 1978; Murdock, 1964). The basic argument of anthropologists is that permissiveness is more associated with matricentered societies, whereas restrictiveness is found mostly in patricentered societies (Broude, 1981:641). This hypothesis is confirmed in data in Table 6; compared to their patrilineal counterparts, matrilineal women are more likely to have premarital sexual experience. Consistent with results from previous work (Djamba, 1995a), the Luba women are the least likely to engage in sexual activity before marriage. Patrilineal, most Luba still expect their daughters to be virgin at marriage. This expectation may account for Luba girls' low probability of engaging in premarital sexual activity.

As expected, the three types of capital are good predictors of initiation of premarital sexual activity, though not all relations are in the predicted directions. As hypothesized, social capital, measured by the number of children in the household, is a positive correlate of initiation of premarital sexual activity. This result is consistent with Coleman's (1988) idea of lack of social capital for individuals in larger families. Hence, the number of children in the household may reduce the

attention children receive, or what Coleman (1988:S111) calls "a dilution of adult attention to the child."

In the context of the extended family, large households may indicate the presence of out of wedlock children. Other explanations about the positive association between social capital and premarital sexual activity can be found in this structure of the African family. In many African societies, most children born to unmarried women live with their grand-parents. In such circumstances, the number of children as defined in the present study can be largely dependent upon the respondent's nephews and nieces, plus fostered relatives. If one accepts that older siblings' sexual behavior affect younger sisters' sexual activity (Haurin and Mott, 1990), then it can be implied that adolescents in larger families are probably following the sexual conduct of their older siblings or relatives.

Whereas the rational adaptation theory assumes a positive relationship between female poverty and premarital sexual activity (Barker and Rich, 1992; Philipson and Posner, 1995), current data show that girls from economically disadvantaged families are less likely to engage in premarital sexual intercourse than their counterparts in better-off families. Hence, the pattern observed in Appendix Table B2 holds accounting for other variables.

While it may be difficult to explain this surprising pattern under the rational adaptation hypothesis, it is perhaps possible to interpret it along the pleasure seeking argument. I contend that, unlike what is usually assumed about adolescent females' sexual conduct, young women in Kinshasa are presumably engaging in sexual activity for pleasure. This argument is supported by data from an unpublished paper on a sample of high school students in Kinshasa in 1989 (Piripiri et al. 1989). According to this 1989 survey, most female high school students (34 percent) said the first time they had sexual intercourse was for pleasure or curiosity. Even when considering only those who were sexually active at the time of the survey, economic reasons were by far the least cited causes of sexual relations by these high school girls (only 2 percent). It is also possible that the idea of pleasure seeking is mostly shared by women who live in well-off families.

Another possible interpretation would be that, where the bride-price must be paid by the husband, financial capital and female virginity can be considered as exchangeable "goods" in marriage market. This idea also discussed by Coleman (1966), Eckhardt (1971), and Goethals (1978), and further summarized in the work of Broude (1981), derives much from the exchange theory (Blau, 1986). Adapted to the current situation, it can be said that poor women may be using sexual restrictiveness as a bartered

resource to accrue their economic value. According to Goethals, where husbands are required to make marriage payment, virginity becomes an important bargaining factor. Hence, within the exchange theory framework, it is still rational that financial capital be positively associated with premarital sexuality. Rephrased in terms of the present findings, permissiveness (restrictiveness) among economically advantaged (disadvantaged) women is a result of the expected socioeconomic benefits to be drawn at marriage. Poor parents will make substantial efforts to prevent their daughters from engaging in premarital sexual activity in order to increase their "marriage value", whereas rich parents may not count on the bride-price for upward mobility.

There are two educational variables in this study: human capital and individual's own education. Both variables are associated with increased likelihood of having premarital sexual intercourse. This result is consistent with one assumption of social disorganization theory which postulates that exposure to modern education reduces social control over young women's sexual conduct (Meekers, 1994). Beyond these family background variables, individual and modern factors have important effects on women's premarital sexual conduct.

Data in Table 6 offer only partial support to the social disorganization theory. While the effects of

educational variables are in the expected directions, the influences of the "exposure covariates" seem not to fit into the social disorganization framework. As found in the preceding section (see Appendix Tables B7 to B9), the social disorganization argument that exposure to mass media could be positively associated with the initiation of sexual activity in Africa (Görgen, Maier, and Diesfeld, 1993:289) is challenged by data in Table 6. The estimates for radio listening, television viewing, and newspaper reading are all negative and significant suggesting that exposure to mass media is associated with reduced probability of having premarital sexual intercourse.

However, how exposure to these types of mass media affects young women's sexuality is difficult to address from current data. A more appropriate variable would be the type of information that these women get from each of these mass media. At a minimum, it can be said that young women who read newspapers, listen to the radio, or watch television, are considerably less likely to engage in sexual activity before marriage partly because these are home-based activities, reducing thus the risk of encountering potential sexual partners.

Another possible explanation may be the content of messages young women receive through these media channels. Zaire is one of the countries which initiated and continues to diffuse messages about safe sex and contraception

through radio, television, and printed materials. In the era of the AIDS epidemic, these messages may discourage the initiation of sexual activity. But, again, further research is needed to examine the influence of each type of mass media on sexual behavior. Such research could follow the methodological approach used by Olaleye and Bankole (1994) in assessing the impact of mass media family planning promotion on contraceptive behavior in Ghana.

The relationship between years lived in Kinshasa and initiation of premarital sexual intercourse is negative and significant. This negative association probably results from the particular trends of original variables from which this index is constructed. As shown previously (Table B4), the likelihood of having the first sexual intercourse prior to marriage is positive for girls who lived mostly in Kinshasa at younger ages, but negative for those who established residence in Kinshasa at older ages.

Because the data in Appendix Table B4 indicate that the effect of residence is positively significant up to age 17, I analyzed further the data (Models III and IV of Table 6) for respondents aged 17 or less. The results (not shown) indicated that living in Kinshasa before age 18 significantly increases the likelihood of having premarital sexual intercourse. Therefore, the negative relationship between residence in Kinshasa and initiation of premarital sexual activity in Models III and IV of Table 6 is probably

due to the dominant effects of the negative associations over the positive ones, as shown in data on the residential variable in the Appendix Table B4.

An interesting finding from this study is that AIDS knowledge is associated with low probability of early initiation of sexual activity. Whether considered with other variables (Table 6), or only in interaction form with age (Appendix Table B6), knowledge of the AIDS epidemic is the most important factor associated with decreased risk of having premarital sexual intercourse in Kinshasa. This result probably reflects the fear associated with HIV/AIDS infection. At all ages, those who know of AIDS are aware that no cure or vaccine exists at present and that infection almost invariably lead to death (Bongaarts, 1996:21).

This study also considers the impact of contraceptive knowledge on initiation of sexual activity. This is an essential factor for justifying the need for sex education programs. When it is considered with AIDS knowledge, contraceptive knowledge appears to be positively and significantly associated with sexual activity (Model IV of Table 6). This result could be misleading if one does not account for the relationship between AIDS knowledge and contraceptive knowledge.

To gauge the validity of the positive association between contraceptive knowledge and premarital sexual

intercourse, it has been necessary to remove the AIDS variable from the regression equation and observe the magnitude and direction of the resulting contraceptive estimate. The results (not reported here) showed that contraceptive knowledge is rather negatively and strongly correlated with the likelihood of engaging in premarital sexual activity. This result suggests that without the threat of AIDS, contraceptive knowledge would increase the likelihood of having premarital sexual intercourse.

Several studies have observed a weak and usually insignificant effect of religious affiliation on premarital sexual conduct (Djamba, 1995a; Meekers, 1994). Since virtually all religions are somewhat conservative regarding unmarried women's sexual conduct, the influences of religion should be further examined in terms of religiosity rather than religious affiliation alone. The values of estimates associated with religious affiliations and religiosity in Table 6 suggest that the frequency of attendance of religious ceremonies is probably a better predictor of premarital sexual activity. As also found elsewhere, attendance of religious ceremonies reduces the risk of having sexual intercourse (Haurin and Mott, 1990). This association implies that religiosity indicates conformity with established norms of sexual restrictiveness.

A well-established factor of premarital sexual activity is age. As found elsewhere (Brewster, 1994), the likelihood of engaging in sexual activity before marriage is positively and strongly associated with age. Its quadratic specification is also significant which suggests that the relationship between age and initiation of premarital sexual activity changes during the life course; the turning point in the full model (Model IV) is around 13 years. This result suggests that, although the biological maturation could be of greater importance in predicting adolescent sexual activity (Rowe and Rodgers, 1994), its effect is not linear. Or, to be more specific, age and its covariates are not all linearly correlated with timing of first premarital sexual intercourse. This can also be seen by examining the tables in Appendix B.

The regression coefficients for self-esteem are all negative and significant suggesting that lower consideration toward self leads to early initiation of sexual activity. According to Rosenberg (1965) and Kaplan and Pokorny (1969), individuals with low self-esteem scores tend to report themselves as having difficulty in making friends, being lonely, being shy persons, etc. Applied to sexual relations, these individuals may have intercourse at younger ages as a means of increasing their self-image, or as "losers" due to their inability to negotiate social relations (Blau, 1986).

Models with interaction effects

Up to this point, I have assumed that all associations between explanatory variables and the dependent variable are made up of additive terms. However, literature suggests that the effects of several variables discussed above may depend on the levels of the other predictors. It is to these types of non-additive effects that I now turn. To account for potential mutlicollinearity and redundancy in the regression equation, I examined the effect of each multiplicative term representing the interaction term in a separate model, controlling for the effects of all other variables.

Three variables involved in the interaction analysis were dichotomized for easier interpretation of the results. The values of financial capital and social capital were divided into two categories, 0 (from 0 to 3), and 1 (for values greater than 3). Similarly, human capital has two categories, 0 (from 0 to 5) and 1 (from 6 to 15). The purpose of the interaction analysis here is to determine whether the impact of education on premarital sexuality is the same at low and high levels of each of the three types of capital.

The results of the interaction effects are given in Table 7. In this table, Model I represents the baseline model. This is the model which includes only additive estimates. The difference between this model and the full

model of Table 6 (Model IV) relies on the transformation of the three types of capital. Whereas these family background variables are analyzed in their continuous forms in Table 6, they are recoded before being examined in models of Table 7. The rationale for running these interaction models and their results are discussed below.

Data on African populations show that the likelihood of being in school increases with rising living standards (Llyod and Blanc, 1995). It is believed that relatively better-off households not only have more resources to invest in their own children but are also recipients of children from less well-off households (Llyod and Blanc, 1995:30. So, education and financial capital may be interrelated factors affecting premarital sexual activity.

Llyod and Blanc (1995:29) also present evidence suggesting that household educational level as measured by the household head's education increases the child's likelihood of successful schooling. An advancement in the conceptualization of educational effect would be to assess the relative effects of individual education and human capital on the likelihood of engaging in premarital sexual intercourse, net of the effects of other variables. I have also considered the possibility that the educational effect on premarital sexual activity may depend on the size of the household, especially the number of children. So, the third interaction term links education with social capital.

Table 7. Event history analysis of the transition to first premarital sexual intercourse: Interaction effects

	Model I		Model II		Model III		Model IV	
Variable	B	SE	B	SE	B	SE	B	SE
Education	0.211***	0.008	0.237***	0.008	0.228***	0.009	0.241***	0.009
Financial capital	0.116**	0.040	0.728***	0.096	0.116**	0.040	0.109**	0.040
Human capital	0.072+	0.040	0.073+	0.040	0.410***	0.089	0.085*	0.041
Social capital	0.341***	0.036	0.334***	0.036	0.343***	0.036	0.975***	0.088
Financial cap. x educ.			-0.101***	0.014				
Human capital x educ.					-0.057***	0.014		
Social capital x educ.							-0.109***	0.014
- 2 LOG L	19,623		19,575		19,606		19,561	
Person-years	20,712		20,712		20,712		20,712	

+ $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Note: Estimates are derived from logistic regression models that control for all other variables.

The data in Model II through Model IV of Table 7 show that education has more effect for those from low capital backgrounds. All interaction terms are negative, or what Neter et al. (1996:310-311) call interference or antagonistic interactions. More specifically, these data reveal that higher educational attainment is associated with greater risks of having premarital sexual experience for women who live in households characterized by low financial capital, low human capital, and low social capital.

In other words, the data in Table 7 show that education has less effect on the risk of having premarital sexual intercourse for young women living in high capital environments. If they have high capital, the educational effect matters less. In contrast, if they have low capital, then education becomes an important predictor of the transition to premarital sexual activity.

SUMMARY

The analysis undertaken in this chapter aimed at determining important factors that, at individual and household levels, affect the probability that a woman will engage in premarital sexual activity. The results were discussed within the rational adaptation and social disorganization theories, and in relation with the anthropological thesis of patrilineal bias.

While many variables are significantly associated with premarital sexual behavior, some relations were not in the predicted directions. But overall, current data are consistent with the idea that kinship system can be used as a predictor of premarital sexual behavior. As suggested in anthropological literature (Goethals, 1978; Murdock, 1964), matricentered societies are more permissive about female premarital sexuality than patricentered societies. This effect holds even when ethnic affiliation is controlled for, implying that both ethnicity and lineage are important predictors of premarital sexual behavior in Kinshasa.

Assumptions of social disorganization theory have been challenged by the findings presented in this chapter. Contrary to what previous research assumes (Görgen, Maier, and Diesfeld, 1993), these data suggest that exposure to mass media does not lead to early initiation of sexual activity. Rather, all mass media variables analyzed in this chapter are negatively associated with early initiation of sexual activity among young women. Such negative associations may reflect the effects of unobserved factors such as the diffusion of AIDS prevention messages through media channels. This explanation seems rational given the strong and negative influence of AIDS knowledge on premarital sexual activity uncovered in this study.

Although its estimate was positive in the full multivariate model, the relationship between contraceptive

knowledge and premarital sexual activity is more complex. Further analysis of the effect of this variable suggested that its influence on the timing of first premarital sexual intercourse could be confounded by the effect of AIDS knowledge. Removing AIDS knowledge from the equation renders the estimate of contraceptive knowledge negative and significant which suggests that contraceptive information without AIDS awareness may lead to premarital sexual permissiveness.

Whereas social disorganization theorists predict positive relations between education, urban residence, and media, and sexual permissiveness, only educational effects were found to significantly affect sexual behavior in the predicted direction. The results of financial capital were not in line with the rational adaptation theory. Measured as family wealth, financial capital was positively associated with the risk of engaging in premarital sexual activity among young women in Kinshasa. But as expected, social capital represented by sibship size increased the likelihood of having premarital sexual experience. The analysis of interaction terms showed that the effect of education on the probability of having premarital sexual intercourse was less for those living in families characterized by high financial capital, high human capital, and high social capital.

In general, this analysis has challenged the validity of some assumptions made in previous work on sexual behavior in Africa. While most earlier data consistently show that age and education increase the probability of having sexual intercourse before marriage (Djamba, 1995a; Meekers, 1994), no study has examined most variables included in this chapter. The conceptual model used in this study has shown that religiosity, AIDS knowledge, exposure to mass media, and self-esteem reduce the chance of having sexual experience before marriage. In contrast, family wealth, sibship size, matricentrality, age, and education increase young women's risk of having premarital sexual intercourse.

CHAPTER 4

FACTORS AFFECTING NUMBER OF PREMARITAL PARTNERS

INTRODUCTION

The analysis of sexual history is important in understanding the patterns of acquisition and transmission of sexually transmitted diseases (Tanfer and Schoorl, 1992:46). One key factor of sexual history is number of sexual partners. It is now well documented that the risk of infection increases with the number of sexual partners (Bongaarts, 1996; May and Anderson, 1987), and that this risk can be reduced, among other safe sex practices, by limiting the number of partners (Tanfer and Schoorl, 1992).

Sexual experiences with multiple partners can also be associated with greater health risk where women are taught to use a variety of substances to attract sexual partners. For example, the desire for a dry and tight vagina widely spread in Zaire is believed to be associated with inflammatory lesions of the vagina and cervix (Brown, Ayowa, and Brown, 1993). These lesions increase the risk of infection by sexually transmitted diseases, including AIDS. Since the sexual practices of drying and tightening the vagina requires good knowledge of side effects of substances in usage, their application by younger women can be very dangerous.

Because the drying-tightening practice is expected to increase among more sexually active women, and given that

change in premarital sexual partners may be positively correlated with frequency of premarital sexual intercourse, women with multiple partners are at higher risk of infection. The analysis undertaken in this chapter focuses on number of sexual partners during the period prior to entry into marital unions. The results are discussed along the rational adaptation and social disorganization theories, and in reference to the anthropological hypothesis of patrilineal bias, all within the social capital framework.

METHODS

The analysis of number of premarital sexual partners is based on data from self-reports of sexual activity among young women interviewed in Kinshasa in 1995. Although the general quality of the data on significant events such as age at menarche and age at first sexual intercourse is valid and precise, data on sensitive questions such as number of sexual partners are likely to suffer from recall lapse, and other types of errors. To reduce the potential effects of such reporting errors, I dichotomized the dependent variable. Further information about this transformation appears in the subsequent section.

Information on number of sexual partners is obtained from the following question: "How many men did you have sexual intercourse with in your life?" Since the focus of this study is on premarital sexual activity, the dependent

variable was adapted to measure sexual behavior prior to marriage. Hence, for ever-married women, the number of premarital sexual partners was estimated by subtracting one (representing the husband) from the reported total number of sexual partners.

I first estimated the likelihood of having multiple sexual partners using logistic regression equations with the respondent as the unit of analysis. But the results showed poor fit; all the likelihood ratio chi-squared statistics were nonsignificant (Halli and Rao, 1992:104). Therefore, I constructed a person-year file to analyze the number of premarital sexual partners with event history procedures. The purpose of the analysis undertaken in this chapter is not to determine who is sexually active. Rather, this chapter focuses on the analysis of sexual promiscuousness. The latter is used here to describe women who have had sexual relations with more than one partners.

In the person-year file, never-married women contributed records from the age of 10 up to their age at survey. Ever-married women contributed for the period from age of 10 to the year preceding their entry into marriage. For example, a woman who married at the age of 18 would have 8 records, from age 10 to age 17, inclusive. Since the transition to marriage is the sole event of censorship here, and because only about 17 percent of the 2,000 respondents were ever-married, the resulting person-year

file is larger than the corresponding file constructed in the previous chapter. The working file for the analysis of number of premarital sexual partners contains 27,619 records.

Table 8 provides the mean values of variables used in the analysis of number of sexual partners. As explained in the previous chapter, these data were gathered with a life-history type questionnaire. Therefore, many variables are time-varying or age-dependent covariates. The time-varying covariates are: age as of the person-year observation, education, financial capital, social capital, residence in Kinshasa, television viewing, radio listening, newspaper reading, contraceptive knowledge, and AIDS knowledge. Information about religion, religiosity, self-esteem, kinship, ethnic affiliation, and human capital was not collected within an event history approach; therefore, these variables are considered "fixed" in time through this study.

CORRELATES OF NUMBER OF PREMARITAL SEXUAL PARTNERS

As already mentioned, data obtained from open questions about sexual experience are usually associated with reporting errors, especially heaping problems at some digits (Rao and DeMaris, 1995). Moreover, exploratory analysis of the data revealed that, statistical procedures that require parametric dependent variables (such as multiple regression) produce poorly fitted models of

Table 8. Mean values of variables used in the event history analysis of number of sexual partners

Variable	Mean	Standard deviation
Dependent variable (having multiple premarital partners)	0.239	0.426
Age at time of person-year observation	16.689	4.298
Education (years of schooling)	3.918	3.774
Religion		
Catholic	0.497	0.500
Protestant	0.194	0.395
Other	0.309	0.462
Religiosity	4.652	4.396
Self-esteem	14.779	2.871
Kinship		
Matrilineal	0.546	0.498
Patrilineal	0.454	0.498
Ethnicity		
Bakongo	0.114	0.318
Kwilu-Kwango	0.456	0.498
Bangala	0.219	0.413
Luba	0.130	0.336
Other	0.081	0.273
Financial capital	2.107	1.887
Human capital	4.242	2.494
Social capital	1.960	2.208
Residence in Kinshasa	0.835	0.371
Television viewing	0.774	0.418
Radio listening	0.680	0.466
Newspaper reading	0.530	0.499
Contraceptive knowledge	0.449	0.497
AIDS knowledge	0.617	0.486
Person-year observations	27,619	

premarital sexual experience. Therefore, the dependent variable was dichotomized for use in discrete-time logistic regression models.

After preliminary analyses of frequency distributions of the dependent variable, respondents were divided in two categories. The first category includes those with less than two premarital sexual partners; such women were coded 0 on the dependent variable. The second category which comprises 24 percent of the person-year file includes respondents who had two or more premarital sexual partners; their scores on the dependent variable were set to 1. The rationale for this categorization relies on the idea that the first sexual experience may be the result of pure curiosity, as revealed in the 1989 pilot study of high school students in Kinshasa (Piripiri et al. 1989). According to this assumption, additional sexual experiences can be considered "voluntary"; and those involved with more than one sexual partner may be considered promiscuous. Since promiscuity is a key determinant factor of diffusion of sexually transmitted diseases including AIDS, women with multiple partners constitute a high-risk group (Bongaarts, 1996:25).

The analysis of number of premarital sexual partners is divided in two parts. The first part contains additive models which provide data for testing the hypotheses discussed the second chapter. The second section focuses on

the analysis of potential interaction effects between selected variables.

Multivariate additive models

The results of analysis of number of premarital sexual partners are reported in Table 9. This table contains four models. These models are presented to show the relative contribution of different sets of variables, and to allow adequate interpretation of findings. Overall, the results in Table 9 show that several variables included in the regression equations are significantly associated with the number of premarital sexual partners.

As can be expected, the effect of age is positive and significant across all models, reflecting the cumulative nature of the dependent variable along this predictor. As found elsewhere (Bingham, Miller, and Adams, 1990; Jessor and Jessor, 1977; Tanfer and Schoorl, 1992), premarital sexual activity is associated with lower religiosity. This negative effect of frequency of attendance of religious ceremonies on partner change can be explained by social control theory (Hirschi, 1969).

If religious denominations represent conventional institutions, then attendance of religious ceremonies, which measures religiosity, can be considered as a proxy for social conformity. Because deviance occurs among individuals with weak bonds to conventional persons and institutions, premarital sexual activity would represent a

Table 9. Event history analysis of premarital sexual promiscuousness: Simple additive models

	Model I		Model II		Model III		Model IV	
Variable	B	SE	B	SE	B	SE	B	SE
Age single years	0.020***	0.004	0.054***	0.005	0.076***	0.005	0.099***	0.006
Education	0.125***	0.004	0.062***	0.006	0.068***	0.006	0.072***	0.006
Religion								
Catholic	0.046	0.040	0.026	0.041	0.049	0.041	0.064	0.042
Protestant	--	--	--	--	--	--	--	--
Other	0.104*	0.043	0.170***	0.044	0.138**	0.044	0.142**	0.045
Religiosity	-0.026***	0.004	-0.037***	0.004	-0.032***	0.004	-0.036***	0.004
Self-esteem	-0.057***	0.005	-0.062***	0.005	-0.047***	0.005	-0.050***	0.006
Kinship								
Matrilineal			0.098**	0.036	0.113**	0.037	0.114**	0.037
Patrilineal			--	--	--	--	--	--
Ethnicity								
Bakongo			-0.065	0.071	-0.039	0.072	-0.097	0.073
Kwilu-Kwango			0.224***	0.056	0.245***	0.056	0.184***	0.057
Bangala			0.424***	0.054	0.427***	0.055	0.408***	0.055
Luba			--	--	--	--	--	--
Other			0.010	0.073	0.013	0.074	-0.026	0.075
Financial capital			0.128***	0.014	0.157***	0.014	0.145***	0.015
Human capital			0.045***	0.006	0.062***	0.006	0.059***	0.007
Social capital			0.078***	0.008	0.088***	0.008	0.086***	0.008
Residence in Kinshasa					-0.439***	0.042	-0.395***	0.042
Television viewing					-0.285***	0.043	-0.254***	0.044
Radio listening					-0.139***	0.040	-0.136***	0.041
Newspaper reading					-0.308***	0.034	-0.299***	0.035
Contraceptive knowledge							0.668***	0.043
AIDS knowledge							-0.982***	0.043
Constant	-1.154***	0.105	-2.210***	0.132	-2.228***	0.137	-2.250***	0.145
- 2 LOG L	27,919		26,927		26,569		25,969	
Person-years	26,510		25,841		25,841		25,841	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

form of deviance. There is, however, no significant difference in number of premarital sexual partners between Catholics and Protestants. But those who are not affiliated with these traditional Christian denominations are significantly at higher risk of having multiple sexual partners before marriage.

The estimates for self-esteem suggest that low self-confidence leads to submissiveness or docility. As Rosenberg found, persons with low self-esteem are easily led, they usually give in and are too easily influenced, and they let others make decisions (Rosenberg 1965:185-186). The results in Table 9, therefore, suggest that women with low self-esteem are probably "easily led" sexually as shown by their likelihood of having multiple partners.

It is worth noting that the social capital framework (not the social capital variable) improves the model of premarital sexual behavior. Model II which is based on Coleman's (1988) social capital framework greatly increases the predictive power of the regression equation, and shows that family background variables are good predictors of premarital sexual promiscuousness. All three family resource-type variables are positive and significantly associated with number of premarital sexual partners. The estimates for social capital, for example, suggest a dilution of parental control in larger families (Coleman, 1988).

Like respondent's own education level, human capital appears positively and significantly associated with the number of premarital sexual partners. This result supports the thesis that exposure to formal education leads to ideational changes which weaken social control over female sexual behavior (Meekers, 1994). Also, as found for initiation of premarital sexual activity in the previous chapter, the relationship between financial capital and premarital sexual activity is positive and significant. This pattern supports my argument that poverty is probably not the cause of premarital sexual activity in Kinshasa.

The hypothesis of patrilineal bias that matrilineal women would be more permissive or promiscuous (Goethals, 1978) is supported by data in Table 9. So, women in matrilineal system "enjoy" more sexual freedom before marriage than their counterparts in patrilineal lineage. Despite the presence of kinship system in the regression equation, there are, still, significant differences in premarital sexual promiscuousness between ethnic groups. Models II through IV show that two ethnic groups - Bangala and Kwilu-Kwango - tend to have more sexual partners than Luba. It would be interesting to conduct ethnographic research on ethnicity and sexuality in Zaire to see how each ethnic group controls and organizes the sexual behavior of its members in both rural and urban settings.

The data in Table 9 offer only partial support to the social disorganization theory. While the assumption that education increases sexual permissiveness appears consistent with the data examined here, all data on exposure variables are not in line with the social disorganization framework. First, all mass media variables are negatively associated with number of premarital sexual partners, suggesting that exposure to Western lifestyle through media probably leads to sexual restrictiveness. Second, living in Kinshasa seems to reduce the risk of having multiple premarital sexual partners.

Other factors which are significantly associated with number of premarital sexual partners are AIDS knowledge and contraceptive knowledge. Women who have information about HIV/AIDS are less likely to have multiple premarital sexual partners. This might partly represent the fear of HIV infection among women who know of AIDS. Contraceptive knowledge is positively associated with number of premarital sexual partners. This positive association reflects the idea that contraceptive knowledge reduces the fear of infection by sexually transmitted diseases and unwanted pregnancies. In other words, contraceptive knowledge reduces the fear of undesirable consequences associated with premarital sexuality.

In short, the results above are consistent with the patrilineal bias hypothesis that matrilineal women enjoy

more sexual freedom. However, the present findings offer only partial support to the social disorganization theory through its educational component. In contrast, the rational adaptation hypothesis which associates increased female sexual activity with poverty (Elias and Heise, 1993; Weiss, 1993) is challenged by the present data. In fact, the relationship between financial capital and number of premarital sexual partners is positive, which implies that, contrary to the rational adaptation hypothesis, family wealth seems to lead to sexual promiscuousness.

Models with interaction effects

As already discussed in the previous chapter, prior literature suggests that some of the variables analyzed above may affect each other's influences on premarital sexual behavior. That is, the effect of a variable, say X1, on the number of premarital sexual partners may depend on the levels of another variable, X2. Consider the assumptions that well-off families have more resources to invest in their children, and that they also tend to attract more young relatives who seek educational opportunities (Lloyd and Blanc, 1995).

In terms of interaction, and within the conceptual model of the present study, the first assumption which links financial capital to children's educational attainment implies that the effect of education on premarital sexual behavior will be different between those

living in poor families and those in well-off families. Given the values of estimates of these two variables in simple additive models (Table 9), it is expected that their interaction effect will be positive. In such a case, it would mean that increasing one's educational level leads to more sexual promiscuousness for those living in rich families than for those in poor families.

I also examined the impact of education on premarital sexual promiscuousness at low and high levels of human and social capital. The influences of these three interaction effects were analyzed, following the approach used in the previous chapter. The results are reported in Table 10. Note that financial capital, social capital, and human capital were dichotomized prior to running the regression models given in Table 10. The first model in this table is the baseline model which is the simple additive model obtained with the dichotomized values of financial capital, social capital, and human capital. All models in Table 10 control for the effects of all other variables present in the last model of Table 9.

The data in Table 10 show that education has less effect on premarital sexual promiscuousness for those respondents who live in high capital environments. However, the impact of education becomes significant at lower levels of financial, human, and social capital. These negative

Table 10. Event history analysis of premarital sexual promiscuousness: Interaction effects

	Model I		Model II		Model III		Model IV	
Variable	B	SE	B	SE	B	SE	B	SE
Education	0.117***	0.005	0.139***	0.006	0.121***	0.006	0.134***	0.006
Financial capital	0.096*	0.040	0.771***	0.092	0.101*	0.040	0.090*	0.040
Human capital	0.336***	0.035	0.338***	0.035	0.406***	0.054	0.349***	0.035
Social capital	0.377***	0.036	0.366***	0.036	0.381***	0.036	0.806***	0.080
Financial cap. x educ.			-0.100***	0.012				
Human capital x educ.					-0.014+	0.008		
Social capital x educ.							-0.068***	0.012
- 2 LOG L	26,080		26,017		26,078		26,046	
Person-years	25,841		25,841		25,841		25,841	

+ $p < 0.10$ * $p < 0.05$ *** $p < 0.001$

Note: Estimates are derived from logistic regression models that control for all other variables.

interactions reflect what Neter et al. (1996:310-311) call interference or antagonistic interactions.

SUMMARY

Studies attempting to isolate factors of premarital sexual behavior in Africa are limited in terms of types of sex variables with which they deal. While the major effort has involved the analysis of transition to first sexual intercourse (Djamba, 1995a; Meekers, 1994), no study has considered the history of premarital sexual activity, especially the number of sexual partners with whom a woman had sexual intercourse. Promiscuity is a key factor of diffusion of sexually transmitted diseases, including AIDS (Bongaarts, 1996). The major goal of this chapter was to determine factors that are associated with increased, or otherwise decreased, risk of having many premarital sexual partners.

The results showed that many variables considered in this chapter are good predictors of number of premarital sexual partners that a woman will have. As with the transition to first sexual intercourse, education and all three types of capital are positively and significantly associated with the likelihood of having multiple sexual partners. AIDS knowledge has a negative influence on the dependent variable suggesting that the fear of HIV infection discourages promiscuous sexual conduct. In fact, AIDS knowledge is the single most important factor

associated with limited number of premarital sexual partners. Self-esteem has a negative effect across all models which suggests that women who score low on Rosenberg's (1965) scale are submissive.

The analysis of interaction terms revealed the existence of antagonistic effects (Nester et al. 1996) between education and each of the three types of capital. This means that education has less effect on the risk of having premarital sexual experience with multiple partners for those living in families with high financial capital, high human capital, and high social capital. But this educational effect becomes important at lower levels of financial, human, and social capital.

The findings of this study are consistent with the anthropological thesis of patrilineal bias (Goethals, 1978). Matrilineal women seem to have greater freedom in their premarital sexual conduct than their patrilineal counterparts. The two educational variables are positively associated with number of premarital sexual partners. However, the fact that all media exposure variables and residence in Kinshasa are negatively and significantly associated with number of premarital sexual partners suggests that the social disorganization theory does not provide a full explanation of female premarital sexual behavior in Kinshasa.

The rational adaptation hypothesis is not supported by these data which show rather a positive association between family wealth and premarital sexual behavior. The significance of the negative effect of AIDS knowledge on premarital sexual promiscuousness suggests that HIV/AIDS information campaigns are effective.

CHAPTER 5

CONTRACEPTIVE USE AT FIRST PREMARITAL SEXUAL INTERCOURSE

INTRODUCTION

The literature on female sexual behavior in Africa shows that in several societies - such as the Buganda of Uganda (Mair, 1965) or the Bangala of Zaire (Djamba, 1995a) - many women become sexually active before marriage. Such behavior is now associated with greater health risks as the HIV is said to be transmitted mainly through sexual intercourse in the region (World Health Organization, 1993). Furthermore, data from a previous study in Kinshasa showed that most women who were sexually active before marriage did not use contraceptives at their first sexual experience (Djamba, 1994).

Premarital promiscuity is associated with greater consequences for females than for males (Hayes, 1987; Population Council, 1994; UNDP, 1992). This is partly the result of women's biological vulnerability to infection, the risk of unwanted pregnancies, and the influence of social norms which limit women's ability to negotiate their sexual lives. With the rise of age of marriage (Meekers, 1994:60), contraception should be considered as an important component of reproductive health research and intervention programs.

The use of contraceptive methods at the first premarital sexual experience is conditioned by several

factors of which the sexual initiation itself is a major component. Despite the apparent simplicity of the relationship between initiation of sexual activity and contraceptive use at that event, and the abundant evidence about the consequences of unprotected sexual activity for young women (Lauritsen, 1994), there has been few empirical studies on this topic. In fact, one major limitation to the analysis of premarital contraceptive use has been the difficulties to adequately control for the potential sequential decision-making process effects between the initiation of sexual intercourse and utilization of a contraceptive method at that event.

The first comprehensive approach in modeling premarital contraceptive use has been proposed by Brewster, Billy and Grady (1993). The present study takes advantage of that new methodological tool to analyze the influences of individual and family background characteristics on the likelihood of using contraceptives at first premarital sexual intercourse. The use of contraceptives at first sexual experience may indicate a more responsible context in which the act is initiated. One basic assumption of the analytical approach employed here is that "contracepted first intercourse is a different type of event than noncontracepted [first] intercourse" (Forste and Heaton, 1988:255).

Since some contraceptive practices require financial resources, girls from well-off families are expected to be more likely contraceptive-users than their counterparts from less fortunate families. This assumption is based on Coleman's (1988) framework of social capital. Under this model, family wealth is viewed as a type of capital that allows individuals to achieve specific goals. Given that most (not all) premarital sexual experiences are not intended for childbearing, and almost certainly not for acquiring sexually transmitted diseases, financial capital is expected to be a positive predictor of contraceptive use at first sexual intercourse.

Social disorganization theorists consider the increase of sexual activity among young women as a result of the society's inability to adequately control the youth (Lauritsen, 1994). Within the African context, such loosening of social control is held to translate in young people's ability to challenge elders' authority (Cherlin and Riley, 1986). If premarital pregnancies and sexually transmitted diseases are perceived as outcomes of deviant behavior (here premarital sexual activity), then contraception can be considered as a means by which girls attempt to avoid social sanctions associated with their behavior.

Hence, girls who perceive high social control, when they engage in sexual activity, will weigh the cost

associated with the consequences of their actions more than those who do not feel such pressure. It is, therefore, expected that higher probabilities of contraceptive use at first sexual intercourse will be found among younger women, and those from ethnic groups that hold strong values about female virginity.

Another interesting hypothesis is the anthropological thesis of patrilineal bias (Goethals, 1978). According to this view, patrilineal societies impose more control upon female premarital sexuality than matrilineal societies. Since in matricentered societies children belong to their mother's lineage, there would be less pressure over premarital childbearing (Lesthaeghe, 1986). So, under the patrilineal bias hypothesis, there would be more contraceptive users at first sexual intercourse among patrilineal women than among matrilineal women.

METHODS

As already mentioned, the analysis undertaken in this chapter aims to explore various factors that promote a more responsible approach to transition to sexual activity for young women. Since the risk of experiencing a contracepted first premarital sexual intercourse is contingent to the likelihood of engaging in sexual activity itself, the model that examines contraceptive use at first sexual experience must take a special form. Such a model must account for the competing risk effects of the two outcome variables:

initiation of first sexual intercourse and contraceptive status at that event.

The competing risk approach, first initiated by Forste and Heaton (1988) and subsequently presented in a more formal way by Brewster, Billy, and Grady (1993), is based on the comparison of estimates of the contracepted and the noncontracepted models. This approach "explicitly recognizes that decisions regarding the initiation of sexual activity and contraceptive use at initiation may be jointly determined" (Brewster, Billy, and Grady, 1993:720). Estimates resulting from the competing risk models are t-statistics. The latter are obtained by dividing the difference between the contracepted and noncontracepted coefficients by the square root of the sum of their squared standard errors.

Estimates obtained from such a procedure are free from the potential bias introduced by the assumption of a sequential decision-making process, allowing the inclusion of data on both sexually and non-sexually experienced women in the same model (Brewster, Billy, and Grady, 1993:720). Following the approach employed in the analysis of the transition to first sexual experience (Chapter 3), the contracepted and noncontracepted models are constructed from discrete-time logistic regression equations using event history data. In these models, the estimates represent the risk of having a contracepted or

noncontracepted first premarital intercourse. These multivariate analyses of life history data are preceded by a presentation of the levels of contraceptive knowledge and prevalence of contraceptive use at first premarital sexual intercourse drawn from the original data file.

LEVELS OF CONTRACEPTIVE KNOWLEDGE AND PRACTICES

All studies conducted in Kinshasa show that most people have some contraceptive knowledge. The percentage of women of reproductive ages who know at least one method of fertility control is usually close to 100 (Bertrand et al. 1990; Djamba, 1994), and knowledge of the AIDS epidemic is almost universal (Bertrand et al. 1991). However, the proportion of users, especially users of modern methods, is still low (Djamba, 1993).

Women aged 14-24 years interviewed in Kinshasa in 1995 were asked to name contraceptive methods they have heard of. Table 11 shows the percentage of respondents who knew about specific methods. The first column (1) in this table contains the percentages for spontaneous responses. The second column (2) provides the percentages for those who knew the method only after the interviewer has described it to them. The last column (3) represents the sum of spontaneous and after-description positive reports.

In general, knowledge of contraceptive methods is high among these young women. Seventy percent of all respondents spontaneously reported having heard of at least one

Table 11. Knowledge of contraceptive methods (N=2,000)

Method known	Type of answer: Spontaneous (1)	Type of answer: Prompted (2)	All (3) (1)+(2)
At least one method	70.1	13.6	83.7
Condoms	64.2	17.2	81.4
Pills	20.2	14.0	34.2
IUD	5.8	5.5	11.3
Injection	12.6	10.2	22.8
Vaginal methods	6.4	6.5	12.9
Sterilization	9.7	9.9	19.6
Natural methods	26.0	17.2	43.2
Withdrawal	14.4	11.2	25.6
Other methods	2.4	--	2.4

Table 12. Contraceptive methods used at first premarital sexual intercourse by respondents who were sexually active before marriage

Method used	All sexually active respondents (N=895)	Respondents who contracepted (N=147)
Condoms	7.7	46.9
Pills	0.7	4.1
Natural methods	7.2	43.5
Withdrawal	0.4	2.8
Other methods	0.4	2.7
Any method	16.4	100.0

contraceptive method. This figure goes up to over 80 percent when considering also those who recalled specific methods after the interviewer's description. For specific methods, condom is the contraceptive most known (81.4 %).

Sexually active respondents were also asked to report on the contraceptive status of their first sexual experience. Information on the timing of the first sexual intercourse and age at first marriage was used to construct data on the level of contraceptive use at first premarital sexual relation. The data in Table 12 show that, of the 895 women aged 14-24 years who were sexually active before marriage, only 16.4 percent used some contraceptive methods or did something to avoid becoming pregnant or being infected during their first sexual experience.

The encouraging news is that among those who had a protected first sexual experience, 46.9 percent used condoms. This method offers relatively high protection against sexually transmitted diseases and unwanted pregnancies. But a non-negligible number of respondents (43.5 %) reported having used natural methods at their first premarital sexual experience.

DETERMINANTS OF CONTRACEPTIVE USE AT FIRST PREMARITAL SEXUAL INTERCOURSE

This section examines factors that increase, or otherwise decrease, the likelihood that a woman who had first intercourse before marriage used a contraceptive method at that event. Due to low rates of usage for

specific methods (see Table 12), the contraceptive use variable employed here represents the use of any method or practice intended at reducing the risk of conception or infection. The predictor variables are the same as the ones used for the analysis of initiation of first premarital sexual intercourse (see Chapter 3 for description and measurement of the explanatory variables).

The results are presented in Table 13. Contracepted and noncontracepted models contains estimates from discrete-time logistic regression equations. To understand the meaning of the estimates in Table 13, it is worth noting what is being predicted in these models. The first model predicts the likelihood of having a contracepted first intercourse relative to the risk of either, remaining virgin, or having a first noncontracepted sexual intercourse. In other words, the first model compares those who contracepted at their first sexual intercourse to all others. The "all others" category includes both virgins and those who have had sexual experience but did not use a contraceptive method at first sexual intercourse.

The estimates in the first model suggest that older women are less likely to use contraceptive at first sexual experience than the younger ones. This is reflected in the sign of the age squared term; any increase in age (beyond the age of 10.5 years) results in greater reduction in probability of having a contracepted first sexual

Table 13. Event history analysis of the risk of experiencing a contracepted & noncontracepted first premarital sexual intercourse: Competing risk approach

	1 Contracepted Model		2 Noncontracepted Model		3 Cross-Model t-statistics
Variable	B	SE	B	SE	1 vs. 2
Age single years	0.126	0.084	-0.291***	0.039	4.503***
Age Squared	-0.006*	0.003	0.010***	0.001	-5.060***
Education	0.016	0.015	0.037***	0.008	-1.235
Religion (ref. Protest.)					
Catholic	-0.006	0.086	-0.023	0.043	0.177
Other	0.052	0.093	0.010	0.047	0.403
Religiosity	-0.010	0.008	-0.005	0.004	-0.559
Self-esteem	-0.002	0.011	-0.005	0.006	0.239
Kinship (ref. Patri.)					
Matrilineal	-0.004	0.078	-0.028	0.039	0.275
Ethnicity (ref. Luba)					
Bakongo	-0.150	0.146	0.045	0.073	-1.195
Kwilu-Kwango	-0.054	0.112	0.118*	0.057	-1.369
Bangala	-0.088	0.111	0.052	0.057	-1.122
Other	-0.057	0.146	0.012	0.075	-0.420
Financial capital	-0.019	0.029	-0.053***	0.016	1.026
Human capital	-0.033*	0.014	-0.011	0.007	-1.406
Social capital	0.025	0.017	0.015	0.009	0.520
Residence in Kinshasa	0.076	0.098	0.087+	0.046	-0.102
Television viewing	0.035	0.091	-0.041	0.047	0.742
Radio listening	-0.027	0.084	0.007	0.044	-0.359
Newspaper reading	-0.080	0.072	0.024	0.036	-1.292
Contraceptive knowledge	0.024	0.087	0.056	0.042	-0.331
AIDS knowledge	0.084	0.085	-0.114**	0.044	2.069*
Constant	-3.169***	0.675	0.863**	0.329	
- 2 LOG L	8,224		23,436		
Person-years	20,712		20,712		

+ $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

intercourse. The estimate for human capital suggests that living in a highly educated family seems to reduce the chance of having a contracepted first sexual intercourse.

The second model predicts the risk of having a noncontracepted first sexual intercourse relative to the risk of remaining virgin and to the risk having a contracepted first sexual intercourse. The reference group includes virgin and sexually active women who did use contraceptives at their first sexual experience. Again, estimates from such models must be interpreted with caution. Hence, data in the second model of Table 13 suggest that education, living in Kinshasa, and being a member of the Kwilu-Kwango ethnic group increase the chance that a woman will not use contraception at her first sexual experience.

The effects of AIDS knowledge and financial capital are negative. As can be expected, the fear of HIV infection discourages young women from engaging in unprotected sex. The effect of financial capital probably indicates that those who have enough resources are able to avoid risky behavior either because they can afford to buy contraceptives, or because they have a more optimistic view about their future. Data on age and its quadratic specification show that women tend not to engage in noncontracepted first sexual experience before age of 15 years. This is interesting because 15 years is also the

minimum legal age of marriage for women in Zaire. It seems, therefore, that people avoid engaging in unprotected sexual activity with minors. Note that the effect of age on the likelihood of having noncontracepted first intercourse becomes positive beyond the age of 15 years (the turning point is age 14.55).

However, and as can be seen, the fact that the reference group (the persons who take the "0" on the dependent variable) includes virgins makes the interpretation trivial. The formal comparative approach developed by Brewster, Billy, and Grady (1993) is used here to determine more accurately the factors that promote safer transition to sexual activity. The results in the last column of Table 13 show that only age and AIDS knowledge do significantly differentiate between having contracepted and noncontracepted first sexual intercourse.

As expected, those who first initiate sexual intercourse at younger ages are more likely to use contraceptive at that event than those who have first intercourse at older ages. In a society where most sexual decisions are made by men (Djamba, 1995b), this finding suggests that men who have sexual intercourse with younger women use contraceptives mostly to avoid unwanted pregnancies. Moreover, since its unlawful to have sexual intercourse with a woman before she reaches the age of 15, and because a pregnancy is the most apparent sign of sexual

activity for females, younger women and their lovers must do something to avoid the negative consequences that might result from their actions. The higher effect of AIDS knowledge indicates the overall consequences associated with this disease. With these results, it is not possible to accept, or otherwise reject, the validity of any of the hypotheses of premarital sexual behavior discussed at the onset of this chapter.

SUMMARY

The context within which the first sexual intercourse occurs is of greater importance these days, especially because of the spread of the AIDS epidemic through heterosexual relations. It is under such considerations that the utilization of contraceptives becomes very important, particularly for unmarried women. Following the competing risk approach (Brewster, 1994; Forste and Heaton, 1988), within a social capital framework (Coleman, 1988), the focal concern of this chapter was to distinguish between factors that increase and those that decrease the likelihood of having a contracepted first premarital sexual intercourse. One important methodological advantage of the competing risk approach is that its estimates are not subject to the bias of sequential decision-making process (Brewster, Billy, and Grady, 1993:720).

The results showed that only two factors have strong significant influences on the likelihood of using a

contraceptive method at first sexual intercourse. Age was negatively associated with the likelihood of having a contracepted first sexual intercourse (taking into the account the value of the age squared term). Since it is unlawful to have sexual intercourse with women below the age of 15, the positive association observed between age below 15 years and contraceptive use at first sexual intercourse probably indicates the fear of social sanctions and lawsuits that might follow any apparent sign of minor females' sexual activity. Also, these data consistently show the importance of AIDS information in promoting more responsible sexual behavior. Women who have AIDS knowledge are more likely to use contraceptives at their first sexual intercourse than those who lack such information.

It was not possible to reject, or otherwise accept, any of the hypotheses discussed at the introductory section of this chapter. None of the key factors associated with these assumptions significantly differentiates between the two contraceptive status models analyzed here. This weak relation between the explanatory variables and the dependent variable is probably due to the low level of contraceptive use at first sexual intercourse in the study population.

CHAPTER 6

CONCLUSION AND IMPLICATIONS

CONCLUSION

The study of premarital sexual behavior in the social sciences has become very important, in part, because of the diffusion of sexually transmitted diseases including AIDS. Researchers believe that the timing of sexual activity (Meekers, 1994) and the context within which the first sexual intercourse occurs (Forste and Heaton, 1988) greatly affect a woman's life. Frequent changes in sexual partners (Bongaarts, 1996) and some sexual practices (Brown, Ayowa, and Brown, 1993) are also associated with increased risk of sexually transmitted diseases, including AIDS.

However, any review of the literature on sex research shows that the field of premarital sexuality is still built on few, if any, comprehensive theoretical frameworks. In fact, most hypotheses emerging from these theoretical perspectives have not been empirically tested, in part, because of the lack of appropriate data. The situation is even worse for African studies. Despite the evidence that most AIDS cases are transmitted through sexual relations (N'Galy and Ryder, 1988), most research published on Africa has been usually descriptive and atheoretical. One major objective of the present study was to construct a conceptual framework through which existing theories on

female premarital sexual behavior in Africa can be more adequately tested.

The conceptual framework which guided the analysis in this study is based on Coleman's (1988) model of social capital which defines family background through financial capital, human capital, and social capital. Including these components of family resources in the analysis of premarital sexual behavior has two merits. First, it has been shown that family background variables greatly improve the predicting power of the model of premarital sexual behavior. Second, these variables are useful in testing key assumptions of the three theoretical perspectives on premarital sexual activity in Africa.

The first perspective, rational adaptation, emphasizes the influence of poverty on female sexual behavior (Barker and Rich, 1992; Meekers, 1994; Weiss, 1993). In line with this perspective, women will use sexual relations as a means of getting resources that only men control (Philipson and Posner, 1995). It was therefore expected that women in poor families would be more permissive than their counterparts in better-off families. The second perspective is the social disorganization theory (Cherlin and Riley, 1986). Its assumptions are based on the idea that parental control over children will decrease with increased formal education, urban background (Le Blanc, Meintel, and Piché, 1991), and exposure to mass media (Görgen, Maier, and

Diesfeld, 1993). The third perspective is essentially based on Goethals' (1978) hypothesis of patrilineal bias. According to this hypothesis, sanctions upon female premarital sexual activity tend to be more severe in patrilineal than in matrilineal societies (Goethals, 1978:48-49).

These hypotheses and other directional relationships posited between female premarital sexual behavior and individual and family background characteristics were examined on data collected from a random sample of 2,000 women aged 14-24 years interviewed in Kinshasa in 1995. These data were collected with an event-history type questionnaire. Such approach permits an adequate representation of changes in explanatory variables which may occur at any point in time (Blossfeld, Hamerle, and Mayer, 1989). The analysis focused on three features of premarital sexual activity: timing of first sexual intercourse, number of sexual partners, and contraceptive status at first sexual intercourse.

The transition to premarital sexual experience, measured as age at first premarital sexual intercourse, was analyzed using a person-year file. A similar approach was followed in analyzing data on contraceptive use at first premarital sexual intercourse. However, because the decision to use contraceptives at first sexual experience may be conditioned by the initiation of sexual activity

itself, the overall contraceptive risk was obtained by comparing contracepted and noncontracepted models of first premarital sexual experience (Brewster, 1994; Brewster, Billy, and Grady, 1993). The initiation of first premarital sexual intercourse and contraceptive use at that event were analyzed as discrete-time varying events in logistic regression equations.

The number of premarital sexual partners was also examined in discrete-time logistic regression models. The dependent variable was dichotomized: the regression models predicted the likelihood of having had multiple (two or more) sexual partners before marriage (for ever-married respondents) or up to the time of interview (for never-married respondents). All three components of premarital sexual behavior (age at first premarital sexual intercourse, number of premarital sexual partners, and contraceptive use at first premarital sexual intercourse) were predicted using the same types of explanatory variables.

Initial values of dependent variables revealed that 46 percent of respondents have had premarital sexual intercourse, but only 16 percent of sexually active women used contraceptives or took some contraceptive precautions at their first sexual experience. The average number of sexual partners in the sample is 1.28. This is rather a

non-negligible figure, given the ages of the study population.

The results of multivariate analyses showed that the hypothesis that poverty leads to sexual permissiveness or sexual promiscuousness is not confirmed in this study. In fact, present data showed that girls from well-off families tend to initiate premarital sexual activity at younger ages and that they have more sexual partners than those from poor families. I have argued that this positive association between financial capital and premarital sexual activity may reflect the symbolic value that families and individuals with different socio-economic status associated with female virginity. More specifically, I have contended that, whereas poor families may use virginity as a bartered good in marriage market, well-off families have other resources to call upon for social mobility. If correct, then this explanation probably suggests a need for the reformulation of the rational adaptation hypothesis.

The social disorganization theory received only partial support from the data analyzed in this study. Whereas education and human capital are associated with early initiation of premarital sexual activity and premarital sexual promiscuousness, the effects of all exposure variables are negative. The hypothesis which received more supported from these data is the patrilineal bias assumption (Goethals, 1978). The results showed that

matrilineal women, not only initiate sexual activity at younger ages, but they are also more likely to have multiple sexual partners than their patrilineal counterparts. The fact that the effect of kinship system remains significant in all models of initiation of premarital sexual intercourse and in all models of number premarital sexual partners suggests that this variable is a key predictor of reproductive health.

An important finding from this study is that social capital is positively associated with early initiation of sexual activity and premarital sexual promiscuousness in Kinshasa. So, as Coleman (1988) argues, control over children seems to diminish in larger families. Another important finding from this analysis is that self-esteem is negatively associated with initiation of premarital sexual behavior and the likelihood of having multiple sexual partners. These negative links indicates that self-confident girls have probably more control over their sexual lives than those who score low on self-esteem scale. This finding is consistent with Rosenberg's (1965; 1985) work which associates low self-esteem with submissiveness and docility.

It was also found that religiosity has negative and significant effects on premarital sexual activity. This religious effect can be explained under the social control theory (Hirschi, 1969), which postulates that bonds to

conventional institutions preserve people from deviant behavior. Perhaps the most encouraging result from this study is that AIDS knowledge reduces both the likelihood of having sexual intercourse before marriage and the probability of having multiple premarital sexual partners, and increases the chance that a woman will use contraceptives at her first premarital sexual experience. Hence providing AIDS information to young women greatly promotes safer transition to sexual activity. As found in previous work (Djamba, 1995a), data on ethnicity revealed that Luba impose more control over female premarital sexual conduct than do most ethnic groups in Kinshasa.

This study contributes to the literature on premarital sexual behavior in two basic ways. First, it introduces a more comprehensive conceptual framework of premarital sexual behavior. The framework constructed here includes both individual and family background factors in the same model of premarital sexual behavior. Second, this study constitutes the first research that empirically examines the relative influences of religiosity, AIDS and contraceptive knowledge, mass media, and self-esteem on three aspects of premarital sexual behavior. The results have shown that the transition to premarital sexual activity is an element of social structure which is significantly influenced by both individual characteristics and family background factors. This socially patterned

trajectory and many of its covariates are age-dependent; as such, they must be conceptualized, collected, and analyzed with event-history procedures.

POLICY IMPLICATIONS

The findings from this study have many important implications for improving present and future efforts to prevent undesirable consequences resulting from premarital sexuality in Kinshasa. One important factor for policy intervention is AIDS information. The influence of this variable clearly indicates that providing AIDS information to young women greatly reduces the risk of early initiation of sexual activity, as well as the probability of having multiple sexual partners. AIDS information leads also to more responsible sexual behavior. So, providing AIDS information to young women helps delay the initiation of sexual activity. Even those who choose to have sexual intercourse will be less promiscuous and they are more likely to practice safe sex if they are informed about the AIDS epidemic.

Efforts should also be devoted to helping children in large families. Such children tend to initiate sexual activity at younger ages, and they are more likely to have multiple sexual partners. Similarly, children in well-off households need assistance as well. Early initiation of sexual activity among children in well-off families suggests that these children are probably more exposed to

the Western lifestyle which tends to promote individual freedom. Their sexual behavior represents, therefore, more a challenge of adult authority through the search of freedom and pleasure.

Any intervention program that aims at reducing the consequences of premarital sexual activity needs to take into the account the ethnic differences in sexual practices in Kinshasa. For example, the higher rates of premarital sexual activity and premarital sexual promiscuousness among Kwilu-Kwango and Bangala suggests that they constitute the highest AIDS-risk ethnic groups in Kinshasa. In general, efforts to reduce the consequences of premarital sexual behavior among young women in Kinshasa should focus mostly on

1) providing AIDS information;
2) considering specific intervention programs for children in larger families, as well as those in well-off households;
3) promoting safer sexual behavior among ethnic groups that are specially at higher risk of sexually transmitted diseases and premarital pregnancies.

AGENDA FOR FUTURE RESEARCH

Several results from this study suggest new areas of inquiry susceptible to improve our knowledge of the factors affecting premarital sexual permissiveness in Kinshasa, as

well as elsewhere. Future investigations can effectively contribute to the field of sex research in two major ways.

The first important area for future investigation concerns ethnographic studies of sexual behavior which would gather data on various ethnic groups. Ethnicity consistently emerges as a fundamental factor of sexual behavior in Kinshasa (Djamba, 1995a). An ethnographic research in this area may be useful if it provides comparative qualitative information about the meaning of sexual relations, AIDS, and contraception across ethnic groups. Since such qualitative research usually requires more time than traditional demographic surveys, one might limit the ethnographic inquiry to two ethnic groups representing the most permissive and the most restrictive sexual behaviors.

The second important area of investigation is the sexual behavior of married persons. Unlike prior research which emphasized reproductive aspects of marital sexuality, future research in the sociology of sex should focus on extramarital sexual relations as well, and on their impacts on conjugal bonds and overall marital satisfaction. Such research should consider both men and women, preferably one person per household randomly selected. This is because, according to our survey experience in Kinshasa, spouses are usually reluctant to participate in the survey in which their partners are also selected (Djamba, 1994).

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APPENDIX A

NOTE ON THE ESTIMATION OF SAMPLE SIZE

The Kinyouth survey aimed at including both married and unmarried women in the sample. Since the age-group was set to 14-24 years, it was necessary to estimate the number of married women to be selected. Using data from married women in Kinshasa in 1991 (Djamba, 1994), I estimated that a sample of 328 married women provided valid estimates for the variables under study. Data from previous surveys were then used to calculate the percentages of married women expected in 1995 for the age-groups 15-19 and 20-24. The basic assumption is that the proportion of married women decreases linearly during the period considered. Under this assumption, the proportion of married women decreases by 1.453 percent every year for women aged 15-19, and by 1.264 percent for those in the age-group 20-24.

Table A1 shows the data used in calculating estimates for the 1995 survey. These figures refer to self-declarations of marital status. The value for age 15-19 in the column of 1995 is obtained by multiplying 1.453 by 5 (5 representing the number of years between 1990 and 1995) and by subtracting the result from the proportion of the same age in the column of the year 1990. The value for 20-24 uses the multiplicative coefficient of 1.264.

The expected percentages of married women served as basis for determining the size of the sample used in 1995.

To obtain a sample which includes the 328 married women, it was necessary to sample 1968 women aged 14-24 years. This figure was rounded to 2,000 to account for nonsampling errors (especially missing values). This procedure is practical because it does not requires the stratification of the sampling frame by marital status. It assumed that there were 16 married women among every group of 100 women sampled.

Table A1. Percentages of married women in different surveys

	Year of the survey		
Age group	1955	1990	1995
15-19	64.7	12.4	5.1
20-24	91.1	45.6	39.3

Source: The 1955 and 1990 data are from Shapiro (1995).

APPENDIX B

AGE-DEPENDENT ANALYSES OF TRANSITION TO PREMARITAL SEXUAL INTERCOURSE

Table B1. Years of schooling as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Education at age 10	0.545	0.730	1.724
Education at age 11	0.496	0.362	1.642
Education at age 12	0.522***	0.151	1.686
Education at age 13	0.586***	0.090	1.797
Education at age 14	0.758***	0.068	2.134
Education at age 15	0.976***	0.062	2.653
Education at age 16	1.013***	0.065	2.754
Education at age 17	0.940***	0.073	2.561
Education at age 18	0.824***	0.089	2.280
Education at age 19	0.740***	0.116	2.096
Education at age 20	0.491**	0.160	1.635
Education at age 21	0.147	0.229	1.158
Education at age 22	-0.164	0.316	0.849
Education at age 23	-1.783+	1.004	0.168
Education at age 24	-3.123	2.735	0.044
Constant	-0.870***	0.192	
- 2 LOG L	26,135		
Person-years	21,767		

+ p < 10 ** p < 0.01 *** p < 0.001

Note: The reference group comprises those with less than seven years of schooling.

Table B2. Financial capital as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Financial capital at age 10	0.869***	0.075	2.384
Financial capital at age 11	0.860***	0.075	2.362
Financial capital at age 12	0.875***	0.076	2.398
Financial capital at age 13	0.848***	0.076	2.336
Financial capital at age 14	0.796***	0.077	2.216
Financial capital at age 15	0.872***	0.082	2.392
Financial capital at age 16	0.900***	0.092	2.459
Financial capital at age 17	0.846***	0.108	2.332
Financial capital at age 18	0.723***	0.129	2.061
Financial capital at age 19	0.700***	0.162	2.014
Financial capital at age 20	0.442*	0.214	1.556
Financial capital at age 21	0.102	0.295	0.108
Financial capital at age 22	-0.210	0.401	0.811
Financial capital at age 23	-3.136	2.368	0.044
Financial capital at age 24	-3.136	3.669	0.044
Constant	-0.896**	0.276	
- 2 LOG L	26,445		
Person-years	21,938		

* p < 0.05 ** p < 0.01 *** p < 0.001

Note: The reference group comprises those who lived in poor households (with less than four "economic items").

Table B3. Social capital as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Social capital at age 10	1.053***	0.080	2.866
Social capital at age 11	0.990***	0.078	2.690
Social capital at age 12	1.011***	0.076	2.749
Social capital at age 13	1.021***	0.074	2.775
Social capital at age 14	0.962***	0.073	2.616
Social capital at age 15	0.983***	0.076	2.672
Social capital at age 16	1.094***	0.083	2.986
Social capital at age 17	1.047***	0.096	2.848
Social capital at age 18	0.982***	0.124	2.671
Social capital at age 19	0.874***	0.162	2.396
Social capital at age 20	0.690**	0.235	1.993
Social capital at age 21	0.219	0.358	1.245
Social capital at age 22	-0.541	0.546	0.582
Social capital at age 23	-3.062	2.901	0.047
Social capital at age 24	-3.062	4.102	0.047
Constant	-0.851**	0.318	
- 2 LOG L	25,922		
Person-years	21,799		

** p < 0.001 *** p < 0.001

Note: The reference group comprises those who lived in small households (with less than four children, including the respondent).

Table B4. Kinshasa residence as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Lived in Kinshasa at age 10	0.897***	0.064	2.452
Lived in Kinshasa at age 11	0.887***	0.063	2.428
Lived in Kinshasa at age 12	0.877***	0.063	2.405
Lived in Kinshasa at age 13	0.861***	0.063	2.365
Lived in Kinshasa at age 14	0.824***	0.063	2.280
Lived in Kinshasa at age 15	0.804***	0.064	2.235
Lived in Kinshasa at age 16	0.622***	0.067	1.863
Lived in Kinshasa at age 17	0.365***	0.072	1.440
Lived in Kinshasa at age 18	-0.036	0.082	0.964
Lived in Kinshasa at age 19	-0.562***	0.099	0.570
Lived in Kinshasa at age 20	-1.274***	0.133	0.280
Lived in Kinshasa at age 21	-2.127***	0.197	0.119
Lived in Kinshasa at age 22	-2.886***	0.283	0.056
Lived in Kinshasa at age 23	-5.233***	0.905	0.005
Lived in Kinshasa at age 24	-6.093***	1.393	0.002
Constant	-1.863***	0.107	
- 2 LOG L	24,135		
Person-years	21,938		

*** p < 0.001

Note: The reference group comprises those who were not living in Kinshasa.

Table B5. Contraceptive knowledge as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Contraceptive knowl. at age 10	-0.148	0.237	0.862
Contraceptive knowl. at age 11	-0.180	0.202	0.835
Contraceptive knowl. at age 12	-0.135	0.155	0.874
Contraceptive knowl. at age 13	-0.137	0.122	0.872
Contraceptive knowl. at age 14	-0.100	0.101	0.905
Contraceptive knowl. at age 15	-0.056	0.079	0.945
Contraceptive knowl. at age 16	-0.101	0.076	0.904
Contraceptive knowl. at age 17	-0.292***	0.078	0.747
Contraceptive knowl. at age 18	-0.678***	0.088	0.508
Contraceptive knowl. at age 19	-1.119***	0.105	0.327
Contraceptive knowl. at age 20	-1.801***	0.141	0.165
Contraceptive knowl. at age 21	-2.817***	0.228	0.060
Contraceptive knowl. at age 22	-3.331***	0.292	0.036
Contraceptive knowl. at age 23	-5.669***	0.934	0.004
Contraceptive knowl. at age 24	-6.676***	1.545	0.001
Constant	-1.979***	0.118	
- 2 LOG L	25,152		
Person-years	21,938		

*** p < 0.001

Note: The reference group comprises those who had no contraceptive knowledge.

Table B6. AIDS knowledge as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
AIDS knowl. at age 10	-1.020***	0.160	0.360
AIDS knowl. at age 11	-0.930***	0.138	0.395
AIDS knowl. at age 12	-0.876***	0.106	0.417
AIDS knowl. at age 13	-0.853***	0.090	0.426
AIDS knowl. at age 14	-0.742***	0.077	0.476
AIDS knowl. at age 15	-0.669***	0.066	0.512
AIDS knowl. at age 16	-0.809***	0.067	0.445
AIDS knowl. at age 17	-1.038***	0.071	0.354
AIDS knowl. at age 18	-1.426***	0.082	0.240
AIDS knowl. at age 19	-1.978***	0.102	0.138
AIDS knowl. at age 20	-2.673***	0.139	0.069
AIDS knowl. at age 21	-3.595***	0.217	0.028
AIDS knowl. at age 22	-4.287***	0.304	0.014
AIDS knowl. at age 23	-6.644***	0.984	0.001
AIDS knowl. at age 24	-8.143***	2.082	0.0003
Constant	-2.290**	0.147	
- 2 LOG L	22,935		
Person-years	21,938		

** p < 0.01 *** p < 0.001

Note: The reference group comprises those who had no AIDS knowledge.

Table B7. Radio listening as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Radio listening at age 10	0.033	0.072	1.033
Radio listening at age 11	0.041	0.069	1.042
Radio listening at age 12	0.029	0.064	1.030
Radio listening at age 13	0.007	0.063	1.007
Radio listening at age 14	-0.0005	0.062	1.000
Radio listening at age 15	-0.014	0.061	0.986
Radio listening at age 16	-0.224***	0.065	0.799
Radio listening at age 17	-0.542***	0.072	0.582
Radio listening at age 18	-0.957***	0.083	0.384
Radio listening at age 19	-1.517***	0.104	0.219
Radio listening at age 20	-2.264***	0.144	0.104
Radio listening at age 21	-3.039***	0.209	0.048
Radio listening at age 22	-3.731***	0.292	0.024
Radio listening at age 23	-6.187***	0.989	0.002
Radio listening at age 24	-7.809***	2.223	0.0004
Constant	-2.030***	0.155	
- 2 LOG L	24,134		
Person-years	21,938		

*** p < 0.001

Note: The reference group comprises those who did not listen to the radio.

Table B8. Television viewing as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Television viewing at age 10	0.006	0.065	1.006
Television viewing at age 11	0.005	0.064	1.005
Television viewing at age 12	0.021	0.061	1.021
Television viewing at age 13	0.021	0.061	1.021
Television viewing at age 14	-0.009	0.060	0.991
Television viewing at age 15	-0.057	0.060	0.944
Television viewing at age 16	-0.260***	0.064	0.771
Television viewing at age 17	-0.568***	0.070	0.566
Television viewing at age 18	-1.005***	0.081	0.366
Television viewing at age 19	-1.585***	0.101	0.205
Television viewing at age 20	-2.286***	0.137	0.102
Television viewing at age 21	-3.104***	0.201	0.045
Television viewing at age 22	-3.877***	0.292	0.021
Television viewing at age 23	-6.327***	0.986	0.002
Television viewing at age 24	-7.870***	2.131	0.0004
Constant	-2.013***	0.149	
- 2 LOG L	23,797		
Person-years	21,938		

*** p < 0.001

Note: The reference group comprises those who did not watch television.

Table B9. Newspaper reading as correlate of the transition to premarital sexual intercourse: An event history analysis

Variable	B	SE	Odds
Newspaper reading at age 10	0.126	0.113	1.134
Newspaper reading at age 11	0.169	0.105	1.184
Newspaper reading at age 12	0.142	0.082	1.152
Newspaper reading at age 13	0.144	0.075	1.155
Newspaper reading at age 14	0.063	0.072	1.066
Newspaper reading at age 15	0.100	0.066	1.105
Newspaper reading at age 16	-0.074	0.068	0.929
Newspaper reading at age 17	-0.392***	0.075	0.676
Newspaper reading at age 18	-0.826***	0.088	0.438
Newspaper reading at age 19	-1.412***	0.111	0.244
Newspaper reading at age 20	-2.049***	0.148	0.129
Newspaper reading at age 21	-3.006***	0.234	0.050
Newspaper reading at age 22	-4.002***	0.380	0.018
Newspaper reading at age 23	-5.774***	0.918	0.003
Newspaper reading at age 24	-6.695***	1.454	0.001
Constant	-1.975***	0.113	
- 2 LOG L	24,648		
Person-years	21,938		

*** $p < 0.001$

Note: The reference group comprises those who did not read newspapers.

APPENDIX C

DESCRIPTIVE STATISTICS FROM THE ORIGINAL SAMPLE

Table C1. Distribution of the original sample for the variables used in the analysis of premarital sexual behavior

Variable	Mean	Standard deviation
Dependent variables		
Premarital sex	0.455	0.498
Multiple premarital partners	0.262	0.440
Contracepted first premarital sex	0.073	0.259
Independent variables		
Age at survey (single years)	18.354	2.987
Education (years of schooling)	8.033	3.429
Religion		
Catholic	0.486	0.500
Protestant	0.198	0.399
Other	0.316	0.465
Religiosity	4.607	4.397
Self-esteem	14.761	2.895
Kinship		
Matrilineal	0.549	0.498
Patrilineal	0.451	0.498
Ethnicity		
Bakongo	0.111	0.314
Kwilu-Kwango	0.459	0.498
Bangala	0.220	0.414
Luba	0.131	0.337
Other	0.080	0.271
Financial capital	3.171	1.258
Human capital	4.173	2.490
Social capital	3.386	1.985
Residence in Kinshasa (years)	12.479	4.168
Television viewing (years)	11.596	5.629
Radio listening (years)	10.221	6.195
Newspaper reading (years)	7.909	6.063
Contraceptive knowledge (years)	7.119	4.761
AIDS knowledge (years)	9.519	4.077
Number of observations	2,000	

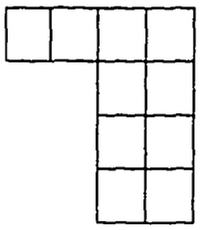
APPENDIX D

ENGLISH VERSION OF THE QUESTIONNAIRE

Translated from the French Original Version.

UNIVERSITY OF KINSHASA
DEPARTMENT OF DEMOGRAPHY

KINSHASA YOUTH REPRODUCTIVE HEALTH SURVEY

SAMPLE NUMBER.....	
STRATUM NUMBER.....	
ZONE:.....	
NEIGHBORHOOD.....	
ADDRESS.....	
HOUSEHOLD HEAD'S NAME.....	
RESPONDENT'S NAME.....	
OTHER REFERENCES.....	

INTERVIEW VISITS

	1	2	3
DATE	---------	----------	---------
INTERVIEWER'S NAME	----------	----------	----------
RESULT (*)	....	....	....
NEXT VISIT: Date, Time	D: /T:	D: /T:	//////////

(*) RESULT CODES:
1 COMPLETED
2 INCOMPLETE, TO CONTINUE NEXT TIME
3 RESPONDENT ABSENT
4 OTHER (specify).....

SUPERVISOR'S OBSERVATION.....DATE.....

EDITED BY.....DATE.....

DATA ENTERED BY.....DATE.....

SECTION 1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

No.	QUESTIONS AND FILTERS	CODIF.
101	**RECORD THE TIME AT THE BEGINNING OF INTERVIEW** **HOUR:** _ _ **MINUTES** _ _	
102	In what month and year were you born? Month _ _ DNK (99) Year _ _ DNK (99)	
103	How old were you at your last birthday? Age in completed years _ _ DNK (99)	
	COMPARE AND CORRECT 102 AND/OR 103	
104	Where were you born? Name of birthplace: _ _ _ _ _ _ _ _ _ _ Type of birthplace: Kinshasa.....1 Other city.....2 Rural.....3 DNK.....9	
105	How long have you been living in Kinshasa? Years in Kinshasa _ _ DNK (99)	
106	Have you lived elsewhere (another place than Kinshasa) for at least 6 months? Yes.....1 No.....2	
	IF 106=1, CONTINUE BELOW. IF 106=2, GO TO 110	
107	What is the name of that place (other than Kinshasa) in which you lived most? Name of major previous residence: _ _ _ _ _ Type previous residence City.....1 Rural.....2 NA.....8 DNK.....9	
108	With who were you living there (household head)? Father and mother.....1 Other.....4 Father without mother.2 NA.....8 Mother without father.3	
109	How old were you when you moved to Kinshasa? Age at immigration to Kinshasa: _ _ DNK.....(99) NA.....(98)	

No.	QUESTIONS AND FILTERS	CODIF.
110	Have you ever attended school? Yes.....1 No.....2	☐
	IF 110=1, CONTINUE BELOW. IF 110=2, GO TO 114	
111	What is the highest level of school you attended? Primary.....1 University.....3 Secondary.....2 Other:_____....4 NA.....8	☐
112	How many years did you complete at that level? Years completed at the highest level: _ _ DNK.....9 NA.....8	☐
113	Are you currently enrolled in school? Yes.....1 No.....2 NA.....8	☐
114	What is your current religion? Name of religion/church:_____ Type of religion: Catholic.....1 Other:_____...3 Protestant....2 No religion.....0	☐
115	How many times did you attend religious services in the last 4 weeks? Number religious services attended: _ _	☐
116	How would you define your religious life? Believe and practice.....1 Do not believe.3 Believe but do not practice.2 Other:_____..4	☐
117	What tribe do you belong to? Tribe:.....(_ _ _) DNK....(999)	☐☐☐
118	What is your system of filiation? Matrilineal.....1 Other:_____...3 Patrilineal.....2 DNK.....9	☐
119	Are you current working, means are you current doing something for which you are paid in cash or kind? Yes.....1 No.....2	☐
	IF 119=1, GO TO 121. IF 119=2, CONTINUE BELOW.	

No.	QUESTIONS AND FILTERS	CODIF.
120	Have you ever worked or been involved in some activities for which you received a salary? Yes.....1 No.....2 NA.....8	☐
121	What is your current marital status? Single.....1 Separated or divorced...4 Married.....2 Widowed.....5 "Union".....3	☐
	IF 121=1, ASK 122. IF 121 > 1, GO TO 123.	
122	Have you ever lived with a man for at least six months? Yes.....1 No.....2 NA.....8	☐
	IF 122=1, ASK 123. IF 121 > 1, ASK 123.	
123	How old were you when you started living with a man for the time? Age at cohabitation: _ _ DNK...99 Never...89	☐☐
124	How many times in a week do you usually watch television? Times TV viewing per week: _ _	☐☐
125	How old were you when you started watching TV? Age at TV exposure : _ _ DNK...99 Never...89	☐☐
126	How many times in a week do you usually listen to the radio? Times radio listening: _ _	☐☐
127	How old were you when you started listening to radio? Age at radio exposure: _ _ DNK...99 Never...89	☐☐
128	How many times in a week do you usually read newspapers? Times newspaper readings: _ _	☐☐
129	How old were you when you started reading newspapers? Age at newspaper expousre: _ _ DNK...99 Never...89	☐☐

SECTION 2. FAMILY STRUCTURE

No.	QUESTIONS AND FILTERS	CODIF.
201	Is your father alive? Yes.....1 No.....2 DNK.....9	☐
	IF 201=1, GO TO 203 IF 201=2 OR 9, ASK 202	
202	How old were you when he died (or when you saw him for the last time if you do not know if he is alive?) Age at the father's disappearance: _ _ DNK.....(99) NA.....(98)	☐☐
203	Is your mother alive? Yes.....1 No.....2 DNK.....9	☐
	IF 203=1, GO TO 205 IF 203=2 OR 9, ASK 204	
204	How old were you when she died (or when you saw her for the last time if you do not know if she is alive?) Age at the mother's disappearance: _ _ DNK.....(99) NA.....(98)	☐☐
205	What is the highest level of school that your father attended? None.....0 University.....3 Primary.....1 Other:_____4 Secondary.....2 DNK.....9	☐
206	What is the highest level of school that your mother attended? None.....0 University.....3 Primary.....1 Other:_____4 Secondary.....2 DNK.....9	☐
207	How many children (including yourself) does your mother have? Mother's number of children: _ _	☐☐
208	What is your birth order in your mother's parity? Respondent's birth order: _ _	☐☐
209	What is your father's most recent occupation? Father's profession: _____ Never worked.....0 Manager or higher..3 Manual work.....1 DNK.....9 Non manual work.....2	☐

No.	QUESTIONS AND FILTERS	CODIF.
210	What is your mother's most recent occupation? Mother's profession: _____ Never worked.....0 Manager or higher..3 Manual work.....1 DNK.....9 Non manual work.....2	☐
211	How many bedrooms do you have in this household? Number bedrooms: _ _	☐☐

Now I would like some information about the people who usually live in your household or who are staying with you. Let's begin with the household head and proceed to the youngest person in the household.

212	213	214	215	216		217	218	219
No.	NAME	SEX	AGE (1)	EDUCATION (2)		RELATIONSHIP (3)	OCCUPATION	PARITY
	Name of the person living in the household	Male=1 Fem=2	Age in years See code (1)	Level & year L=level Y=year See code (2)	Is this person currently enrolled in school?	This person is your... See code (3)	Is this person currently working?	How many child. does he/she has?
		M F		L Y	Yes No		Yes No	
01		1 2			1 2		1 2	
02		1 2			1 2		1 2	
03		1 2			1 2		1 2	
04		1 2			1 2		1 2	
05		1 2			1 2		1 2	
06		1 2			1 2		1 2	
07		1 2			1 2		1 2	
08		1 2			1 2		1 2	
09		1 2			1 2		1 2	
10		1 2			1 2		1 2	
11		1 2			1 2		1 2	
12		1 2			1 2		1 2	
13		1 2			1 2		1 2	
14		1 2			1 2		1 2	

Codes: (1): **AGE**
If the respondent does not know a person's age, ask her if she thinks the person is:
older than her = 98
same age as her= 90
younger than her = 89

(2) **EDUCATION**
Level: None=0, Prim.=1, Sec.= 2, Univ.=3, Other=4, DNK=9
Year: Last year. None=0, DNK=9

(3) **RELATIONSHIP**
Respondent = 0 Your father or mother = 1 Your child = 3
Your brother or sister = 2 Other = 4

SECTION 3. SEXUAL LIFE

No.	QUESTIONS AND FILTERS	CODIF.
301	At what age did you have your first period? Age at first period: _ _ DNK.....99 Not yet.....98	☐☐
302	Were you told or did you receive information about period before having your first period? Yes.....1 No.....2	☐
	IF 302=2, GO TO 304; IF 302=1, CONTINUE BELOW	
303	Who was your main source of information about period before you had your first period? Mother.....1 Boyfriend.....5 Sister & cousin..2 Teacher.....6 Father.....3 Other.....7 Girlfriend.....4 NA.....8	☐
304	With who do you usually talk about your sexual life? Mother.....1 Boyfriend.....5 Sister & cousin..2 Teacher.....6 Father.....3 Other.....7 Girlfriend.....4 NA.....8	☐
305	Have you ever had sexual intercourse? Yes.....1 No.....2	☐
	IF 305=2, GO TO 316; IF 305=1 CONTINUE BELOW	
306	How old were you when you first had sexual intercourse? Age at first intercourse: _ _ DNK.....99 NA.....98	☐☐
307	How old was your first sexual partner when you had first intercourse? Age first sexual partner: _ _ DNK.....99 NA.....98	☐☐
308	Did you, your partner or yourself, use any contraceptive method or do something to avoid getting pregnant or sexually transmitted diseases the first time you had sexual intercourse? Yes.....1 No.....2	☐
	IF 308=2, GO TO 310; IF 308=1 ASK 309 THEN SKIP 310	

No.	QUESTIONS AND FILTERS	CODIF.
309	What method did you use or what did you do to avoid getting pregnant or sexually transmitted diseases the first time you had sexual intercourse? Condom.....1 Shower after sex.....4 Pill.....2 Natural method.....5 Withdrawal..3 Other (specify).....6 NA.....8	☐
310	Why didn't you use a contraceptive method or do something to avoid getting pregnant or sexually transmitted diseases the first time you had sexual intercourse? Yes Non Did not expect to have intercourse..1 2 Lack of information.....1 2 Lack of contraceptives.....1 2 Partner opposed.....1 2 Fear of partner's reaction.....1 2 Was sure no thing would happen.....1 2 Other (specify).....1 2	☐ ☐ ☐ ☐ ☐ ☐ ☐
311	Considering the conditions in which you had your first sexual intercourse, would you say that: You were forced to have intercourse or raped..1 You were persuaded to have intercourse.....2 You freely consented to have intercourse.....3 Not applicable.....8	☐
312	Did you receive a gift or money from your first sexual partner? Yes (received)...1 No (not received)...2 NA..8	☐
313	How many times did you have sexual intercourse in your life? Total number of intercourse: _ _ DNK.....99 NA....98	☐☐
314	How many times in a month do you usually have sexual intercourse? Monthly number of intercourse: _ _ DNK.....99 NA....98	☐☐
315	How many men did you have sexual intercourse with in your life? Total number sexual partners: _ _ DNK.....99 NA....98	☐☐
316	Comparing yourself to other girls of your age, would you say that you have more, less, or same level of sexual experience? More.....1 Same level...3 DNK....9 Less.....2 NA.....8	☐

No.	QUESTIONS AND FILTERS	CODIF.
317	What would you say about your parents' and other relatives' attitude towards your sexual behavior? Do you think that: They control you too much.....1 They control you less.....2 They do not control you at all.....3 NA.....8 DNK.....9	☐

IF THE RESPONDENT HAD NO INTERCOURSE, GO TO 326

Now I would like to ask you some questions about your sexual life from birth up to current date.

318	319	320	321		322	323	324	325
AGE	NUMBER SEXUAL INTER-COURSE	NUMBER SEXUAL PART-NERS	NUMBER TIMES YOU USED		AGE MOST FREQUENT PARTNER	ANY GIFTS? Yes=1 No=2	EVER PREG-NANT? Yes=1 No=2	ABOR-TION? Yes=1 No=2
			CONDOM	OTHER METHODS				
Be-fore 10						Yes No 1 2	Yes No 1 2	Yes No 1 2
10-13						1 2	1 2	1 2
14						1 2	1 2	1 2
15						1 2	1 2	1 2
16						1 2	1 2	1 2
17						1 2	1 2	1 2
18						1 2	1 2	1 2
19						1 2	1 2	1 2
20						1 2	1 2	1 2
21						1 2	1 2	1 2
22						1 2	1 2	1 2
23						1 2	1 2	1 2
24						1 2	1 2	1 2

Now I would like to ask you some questions about your education, all places you lived in, and persons with who lived in those places.

326 AGE	327 EDUCATION			328 PLACE RESIDED	329 LIVING ARRANGEMENT			330 ALL PERSONS IN THE HOUSE-HOLD	
	Were you en-rolled in school? Yes 1 No 2	Which level? 0=None 1=Prim. 2=Sec. 3=Univ. 4=Other 9=DNK	Which grade? 0=Not in school 9=DNK	Where were you living? 1=Kin 2=Other city 3=Rural	Were you living in the same household with your father Yes 1 No 2	mother Yes 1 No 2	husb. or lover? Yes 1 No 2	How many people total?	older than you? 99=DNK
10	1 2				1 2	1 2	1 2		
11	1 2				1 2	1 2	1 2		
12	1 2				1 2	1 2	1 2		
13	1 2				1 2	1 2	1 2		
14	1 2				1 2	1 2	1 2		
15	1 2				1 2	1 2	1 2		
16	1 2				1 2	1 2	1 2		
17	1 2				1 2	1 2	1 2		
18	1 2				1 2	1 2	1 2		
19	1 2				1 2	1 2	1 2		
20	1 2				1 2	1 2	1 2		
21	1 2				1 2	1 2	1 2		
22	1 2				1 2	1 2	1 2		
23	1 2				1 2	1 2	1 2		
24	1 2				1 2	1 2	1 2		
AT THE FIRST SEXUAL INTERCOURSE									
	1 2				1 2	1 2	1 2		

Now I would like to ask you some questions about material goods in each of the households in which you lived, and about your work status from the age of 10 up to date.

331 AGE	332 MATERIAL GOODS IN THE HOUSEHOLD														333 WORK STATUS	
	The household in which you lived at the age of __ years did it have the following items:															
	Radio?		TV?		Electricity?		Flush toilet?		Bicycle?		Motor-cycle?		Car, van, or truck?		Were you working?	
	Yes 1	No 2	Yes 1	No 2	Yes 1	No 2	Yes 1	No 2	Yes 1	No 2	Yes 1	No 2	Yes 1	No 2	Yes 1	No 2
10	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
11	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
12	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
14	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
15	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
16	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
17	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
18	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
19	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
20	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
21	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
22	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
23	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
24	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
AT THE FIRST SEXUAL INTERCOURSE																
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2

No.	QUESTIONS AND FILTERS	CODIF.
334	Do you know any body who died of AIDS? Yes.....1 No.....2	☐
	IF 334 = 2, GO TO 336; IF 334 = 1, CONTINUE BELOW	
335	What is your relationship to these persons you know who died of AIDS? Was any of them your: Parent (father or mother) Yes 1 No 2 Brother or sister Yes 1 No 2 Member of your extended family Yes 1 No 2 Friend or colleague Yes 1 No 2 Neighbor Yes 1 No 2 Other Yes 1 No 2	☐ ☐ ☐ ☐ ☐ ☐
336	Do you think that one can get AIDS or HIV virus by Touching someone who has AIDS.....Yes 1 No 2 Hugging someone who has AIDS.....Yes 1 No 2 Kissing someone who has AIDS.....Yes 1 No 2 Wearing the clothes of someone who has AIDS.....Yes 1 No 2 Eating together with someone who has AIDS.....Yes 1 No 2 Having sexual intercourse with someone who has AIDS.....Yes 1 No 2 Through mosquito bites.....Yes 1 No 2 Through blood transfusion.....Yes 1 No 2	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
337	How old were you when you first heard of AIDS? Age at AIDS knowledge: _ _ DNK.....99 NA.....98	☐☐

SECTION 4. CONTRACEPTION: KNOWLEDGE AND PRACTICES

Now I would like to talk about different birth control methods and other practices that people use to avoid getting pregnant or sexually transmitted diseases.

No.	QUESTIONS AND FILTERS	CODIF.
401	What are the methods or practices of birth control or means of preventing against sexually transmitted diseases do you know or that you have heard about?	

CIRCLE 1 IN COL. 401 FOR METHODS OR PRACTICES MENTIONED SPONTANEOUSLY. DESCRIBE EACH METHOD NOT MENTIONED BY THE RESPONDENT AND ASK IF SHE RECOGNIZES IT. CIRCLE 2 FOR METHODS RECOGNIZED AFTER DESCRIPTION AND 3 FOR THOSE SHE STILL DOES NOT RECOGNIZE.

No.	QUESTIONS AND FILTERS	CODIF.
402	Which of these methods or practices have you ever used?	

CIRCLE 1 IN COLUMN 402 FOR EACH METHOD EVER USED.
CIRCLE 2 FOR METHODS NEVER USED BY THE RESPONDENT.

403	Do you know where one can obtain or buy each of these methods?	

CIRCLE 1 IN COLUMN 403 FOR EACH METHOD FOR WHICH THE RESPONDENT KNOWS WHERE TO OBTAIN IT AND 2 IF SHE DOES NOT KNOW.

Method	401 Have you ever heard of (method)?	402 Have you ever used (method)?	403 Do you know where a person can get..
01 Condom: rubber sheath men can wear during intercourse.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
02 Pill: tablets that women take every day to prevent pregnancy.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
03 IUD: women can have a loop or coil placed inside them.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
04 Injection: women can have an injection to avoid getting pregnant.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
05 Vaginal methods: diaphragms, sponge, suppository, etc...	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
06 Sterilization: Churgical operation on men or women.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
07 Natural methods: Abstinence during the woman's fertile period.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	Yes....1 No.....2
08 Withdrawal: men can be careful and pull out before ejaculation.	Yes, spont..1 Yes, desc...2 No.....3	Yes.....1 No.....2	
09 Other (specify): _____	Yes, spont..1 No.....3	Yes.....1 No.....2	

No.	QUESTIONS AND FILTERS	CODIF.
404	In general, do you think it is easy for a girl like you to get contraceptives here in Kinshasa? Yes, it is easy...1 No, it is difficult..2 Not applicable....8 DNK.....9	☐
	IF 404 = 2, ASK 405. IF 404 = 1 GO TO 406	
405	Why would it be difficult to obtain contraceptives here in Kinshasa? Contraceptives are expensive.....1 Contraceptives are not available.....2 Family planning services do not serve unmarried girls.....3 A girl who seeks contraceptives or who visits family planning centers is considered a bad girl by the society.....4 Other (specify)_____5 NA.....8	☐
406	Between the first day of a woman's period and the first day of her next period, are there certain times when she has a greater chance of becoming pregnant than other times? Yes.....1 No.....2 DNK.....9	☐
	IF 406 = 2 OR 9, GO TO 408; IF 406 = 1, CONTINUE BELOW	
407	During which times of the monthly cycle does a woman have the greatest chance of becoming pregnant? During her period.....1 Right after her period.....2 In the middle of her cycle..3 Juste before her period.....4 Other (specify)_____5 DNK.....8	☐
408	Do you think that condom properly used can prevent against the transmission of the HIV virus? Yes.....1 No.....2 DNK.....9	☐
	ASK 409 IF THERE IS AT LEAST ONE 'YES" IN COLUMN 401.	
409	How old were you when you first heard of contraception? Age at contraceptive knowledge: _ _ DNK.....99 NA.....98	☐☐

No.	QUESTIONS AND FILTERS	CODIF.
	ASK 410 IF THERE IS AT LEAST ONE 'YES" IN COLUMN 402.	
410	How old were you when you first used contraceptives? Age at first contraceptive use: _ _ DNK.....99 NA.....98	☐☐
411	Are you pregnant now? Yes....1 No....2 DNK....3 NA.....8	☐
412	When did your last menstrual period start? Day:. _ _ DNK.....99 NA.....8 Month: _ _ DNK.....99 NA.....8 Year:. _ _ DNK.....99 NA.....8	☐☐ ☐☐ ☐☐

SECTION 5. SELF-ESTEEM AND MATE SELECTION PREFERENCES

To have an idea about how you consider yourself from your past and present experience, I would like to read the following ten propositions and ask you to tell me if you:

1. Strongly agree;
2. Agree;
3. Disagree; or,
4. Strongly disagree.

No.	QUESTIONS AND FILTERS	CODIF.
	QUESTIONS 501 TO 510: CIRCLE ONLY ONE NUMBER: SEE EXPLICATIONS ABOVE.	
501	You feel that you are a person of worth, at least on an equal plane with others. 1 2 3 4	☐
502	You feel that you have a number of good qualities. 1 2 3 4	☐
503	All in all, you are inclined to feel that you are a failure. 1 2 3 4	☐
504	You think that you are able to do things as well as other people. 1 2 3 4	☐

No.	QUESTIONS AND FILTERS	CODIF.
505	You think that you do not have much to be proud of. 1 2 3 4	☐
506	You have a positive attitude toward yourself. 1 2 3 4	☐
507	On the whole, you are satisfied with yourself. 1 2 3 4	☐
508	You wish you could have more respect for yourself. 1 2 3 4	☐
509	There are moments when you certainly feel you are useless. 1 2 3 4	☐
510	At times, you think you are no good at all. 1 2 3 4	☐
511	How do you consider marriage in your life? Would you say that it is - Very important, means more important than anything else.....1 - Important, means there are things equally or more important for you than the marriage.....2 - Less important, means you can abstain from from getting marriage.....3 - Not important, means you prefer not to marry.....4	☐
512	How many living children do you have? Number of living children: _	☐
513	How many children would you like to have in your life? Ideal number of children: _ _ DNK..99	☐☐
	THE INTERVIEW ENDS HERE FOR WOMEN CURRENTLY IN MARITAL UNION. DO NOT FORGET TO RECORD THE EXACT TIME OF THE END OF THE INTERVIEW. CONTINUE THE INTERVIEW FOR WOMEN NOT IN MARITAL UNION.	
514	Suppose you decide to marry now. How age would you consider ideal for your husband? Ideal age husband: _ _ DNK..99	☐

No.	QUESTIONS AND FILTERS	CODIF.
515	What would be your first, second, third, and fourth choices about your husband's level of education from the following levels? No education.....1 Primary.....2 Secondary.....3 University.....4 Any level.....8 First choice: _ Second choice: _ Third choice: _ Fourth choice: _	☐☐☐☐
516	What would be your first, second, and third choices about his marital status from the following cases? Single.....1 Divorced.....2 Married.....3 Any marital status.....8 First choice: _ Second choice: _ Third choice: _	☐☐☐
517	What would be your first, second, third, and fourth choices about his occupational status from the following cases? Unemployed.....1 Manual worker.....2 Non-manual worker.....3 Manager or higher.....4 Any.....8 First choice: _ Second choice: _ Third choice: _ Fourth choice: _	☐☐☐☐
518	What would be your first, second, and third choices about his religious life from the following cases? Same as yourself.....1 Less religious than you..2 More religious than you..3 Any.....8 First choice: _ Second choice: _ Third choice: _	☐☐☐
519	What would be your first and second choices about his ethnicity from the following cases? Same as yourself.....1 Different from you.....2 Any ethnic group.....3 First choice: _ Second choice: _	☐☐
520	If all conditions are met, at what age would you like to marry? Ideal age at marriage: _ _ DNK..99	☐☐
521	**RECORD THE TIME AT THE END OF INTERVIEW HERE:** **HOUR** _ _ **MINUTES** _ _	☐☐ ☐☐

VITA

The author was born on January 1, 1960, in Lodja, a town located in the center of the Republic of Zaire. He received his elementary education in Wembo-Nyama at the *Ecole Primaire Centrale Methodiste de Wembo-Nyama*, between 1966 and 1972. From 1973 to 1979, he attended the *Institut de Wembo-Nyama*, a high school affiliated with the United Methodist Church, where he worked as a high school teacher, from 1979 to 1980.

In October 1980, he enrolled at the Institute for Applied Techniques (ISTA) in Kinshasa where he graduated in 1984, with a degree in Technical Engineering. In 1984, he enrolled at the University of Kinshasa, and obtained a Bachelor's degree in Demography in 1986. From 1987 to 1991, he worked as a Teaching and Research Assistant in the Department of Demography at the University of Kinshasa. In 1991, he came to Louisiana State University to pursue his studies in Sociology. He received the Master's degree in Sociology in May 1994, and he is now a candidate for the degree of Doctor of Philosophy in Sociology.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Yanyi Kasongo Djamba

Major Field: Sociology

Title of Dissertation: Family Context and Premarital Sexual Activity in Kinshasa, Zaire

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

July 30, 1996